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MAPS

PROVINCIAL GAZETTEERS OF INDIA

BURMA

VOLUME II

Minbu Division.—The south-western Division of Upper Burma, lying entirely in the Irrawaddy basin, between 18° 52′ and 22° 50′ N. and 93° 59′ and 95° 52′ E. It is bounded on the north by the Upper and Lower Chindwin Districts; on the east by the Lower Chindwin, Sagaing, Myingyan, Yamethin, and Toungoo Districts; on the south by Prome District; and on the west by the Arakan Division and the Chin Hills. It comprises four Districts: Thayetmyo in the south, lying astride the Irrawaddy, mainly in Lower Burma; Minbu and Magwe, north of Thayetmyo, the former between the Irrawaddy and the Arakan Yoma, the latter between the Irrawaddy and the Pegu Yoma; and Pakokku, extending from the Irrawaddy and Chindwin to the Chin Hills. The Commissioner of the Division also exercises control over the PAKOKKU CHIN HILLS, which lie to the west of Pakokku. With the exception of a comparatively narrow strip of hill country in the west, practically the whole of the Division lies in, and is typical of, what is known as the dry zone of Burma. The population of the Division (excluding the Pakokku Chin Hills) was 997,269 in 1891, and 1,076,280 in 1901. Its distribution in 1901 is shown in the table below.

District.	Area in square miles.	Population in 1901.	Land revenue and *thathameda* in 1903-4, in thousands of rupees.
Thayetmyo	4,750	239,706	4,57*
Pakokku	6,210	356,489	8,53
Minbu	3,299	233,377	6,62
Magwe	2,913	246,708	5,07
Total	17,172	1,076,280	24,79

* Includes capitation tax in Thayetmyo.

The people.

The population is distributed over 7 towns and 4,714 villages. The head-quarters are at MINBU (population, 5,780), in river communication with all the other District head-quarters[1]. The other towns are PAKOKKU (19,456), THAYETMYO (15,824), ALLANMYO in Thayetmyo District (10,207), SALIN in Minbu District, and MAGWE and TAUNGDWINGYI in Magwe District. Pakokku and Allanmyo are trade centres, and both Thayetmyo and Salin are towns of some antiquity, but there are no important historic sites in the Division. By far the greater number of the people are Burmans, who aggregated 1,009,102 in 1901. Chins (to the number of 43,810) inhabit the Arakan Yoma and Chin Hills along the western border, and, to a small extent, parts of the Pegu Yoma also. In Pakokku District are a community known as the Taungthas, numbering 5,701. Shans and Chinamen are few in number, as are natives of India. The Census of 1901 showed totals of only 4,768 Hindus and 4,696 Musalmāns.

Boundaries, configuration, and hill and river systems.

Thayetmyo District.—District of the Minbu Division, Burma, lying between 18° 52′ and 19° 59′ N. and 94° 24′ and 95° 52′ E., with an area of 4,750 square miles. It is bounded on the north by Minbu and Magwe Districts; on the south by Prome; on the east by Yamethin and Toungoo; and on the west by Sandoway. Its natural boundaries are the main ridges of the two great ranges, the Arakan Yoma on the west and the Pegu Yoma on the east. From these main ranges the hills trend east and west to form the Irrawaddy watershed.

The Irrawaddy flows down the centre of the District from north to south, and with its tributaries drains the whole. Of its affluents on the west the most important are the Pani, the Maton, and the Made. The Maton rises in the Arakan Yoma in the latitude of Minbu, and runs for about 35 miles in a southerly direction, to the point where it is joined by the Mu, then turning south-east to join the Irrawaddy, a short distance above Kama, in the south of the District, after a farther course of about 65 miles. The Pani, which rises in the extreme north-west corner of the District, flows into the Maton 10 miles from its mouth. The country between the Pani and the Irrawaddy is cut up by unimportant watercourses, which are liable to sudden floods during the rains, but at other times are practically dry. South of the Maton is the Made, which runs for about 40 miles from the Yoma to join the Irrawaddy at Kama, but is insignificant in the dry season. On the eastern

[1] The transfer of the head-quarters to Magwe has been sanctioned, and will probably take place shortly.

slopes of the Irrawaddy valley the principal tributaries are the Kyini and the Butle. The former rises in the hills which separate the Sinbaungwe from the Allanmyo township, and, joined by numerous affluents, empties itself into the Irrawaddy at Allanmyo, after a course of about 50 miles. South of it is the Butle, nearly 60 miles in length, rising in the Pegu Yoma at the south-east corner of the District, and flowing due west to join the Irrawaddy 10 miles below Thayetmyo. It is swelled from the south by several streams which drain the whole of the south-eastern portion of the District. The Arakan Yoma averages about 4,000 feet in height, twice exceeding 5,000 feet. The Pegu Yoma on the east is much less lofty, rising but once above 2,000 feet, and tailing off towards the north. The hills that divide the narrow river valleys on either side of the Irrawaddy rarely attain any considerable altitude.

Geology. The western portion of the District is occupied by a series of shales and limestones (either Upper Cretaceous or Tertiary), known as Chin shales. To the east of these come shales and limestones containing Nummulitics, and farther east still are marine sandstones, among which petroleum occurs in small quantities, and clays of miocene age. East of the Irrawaddy the ground is covered by alluvium and sandstone containing fossil wood.

Botany. The flora of the District is for the most part characteristic of the dry zone. Teak is plentiful, and cutch is not uncommon. Large tracts are covered with dry scrub jungle, and the cactus is very plentiful.

Fauna. Barking-deer and wild hog are common throughout the District. The brow-antlered deer (*thamin*) is found in the plains; and in the thicker forests near the Yoma, bison, buffaloes, tigers, elephants, bears, and rhinoceros abound. Pea-fowl are scarce, but silver pheasants are found in considerable numbers in the hills.

Climate and temperature. The climate has the drier characteristics of Upper Burma, and shows more marked variations than the neighbouring delta. The temperature falls as low as 42° in the nights of the cold season, and sometimes rises above 105° at noon in the hot season; but the range in the hottest and coldest months is roughly from 77° to 103°, and from 55° to 83° respectively. The District is accounted fairly healthy, though statistics show that cholera breaks out occasionally in places when the river recedes far from the villages, and the inhabitants are too lazy to get a better supply of water than is afforded by stagnant pools and contaminated streams. Fever is prevalent in the

upper valleys of the tributaries that pour down from the Arakan Yoma.

Rainfall. The rainfall is scanty and capricious, and crops are frequently destroyed by untimely drought. The records at the head-quarters of the townships for the last ten years give averages varying from 31 inches at Minhla and Sinbaungwe (bordering on the dry zone) to 49 inches at Mindon, near the foot of the Yoma, and closer to the wetter areas of the delta.

History and archaeology. Little is known of the early history of the District, which is rarely mentioned in Burmese annals. After the conversion of the people to Buddhism, its southern tracts appear to have belonged to the kingdom of Tharekhettra (Prome), the northern portion being administered from the modern Salin or Pagan. The town of Mindon, at the foot of the Arakan Yoma, was founded by a fugitive king of Prome, on the destruction of his capital by the Talaings (about the middle of the eighth century A. D.). The same monarch again rose to power at Pagan, and a considerable portion of the District was for more than 500 years included in the kingdom which he founded. The governors of Thayetmyo were appointed from Pagan during this period; but the fall of the Pagan dynasty was followed by a long period of internal revolts, and the hold over Thayetmyo was in all probability of the lightest. The District was found parcelled out among various governors when it was annexed with the rest of Pegu in 1852, and was then formed into a subdivision of Prome District. In 1870 it was made into a separate Deputy-Commissioner's charge, and its boundaries were extended by the Upper Burma subdivision of Minhla after the annexation in 1886. The head-quarters of this portion of the District are at Minhla, where the remains of the old Burmese fort, now used as a bazar, mark the point at which the first resistance was offered by the Burmans to the advance of the British in 1885. The fort was taken by storm, and the position on the opposite side of the river was destroyed by dynamite. The sites of the old British frontier forts are still traceable. The disturbances that followed on the annexation of Upper Burma were not without their effects in Thayetmyo, and for several years after 1886 the District was harried by gangs of dacoits. Nga Swe, the most notorious disturber of the peace in this region, was killed, however, in 1888, and after that the country gradually quieted down.

The most noted pagodas are the Shweandaw, a few miles north of Thayetmyo town (founded in 1157); the Shwemyindin or Shwesutaungbyi in the Kama township (said to have been

erected in A.D. 100); and the Shwethetlut, in the town of Thayetmyo (built in 1373). The last named is remarkable as being hollow. Its name means 'the saving of the golden life,' and it was erected by a king of Ava as a thank-offering for the preservation of his life when taken prisoner by the king of Arakan in Thayetmyo. The alternative name of the Shwemyindin pagoda, or Shwesutaungbyi (meaning 'prayers fulfilled'), bears testimony to its reputed efficacy in responding to petitions.

The people.

The population, excluding the Minhla subdivision (annexed in 1886), was 156,816 in 1872, 169,560 in 1881, 194,637 in 1891, and 174,646 in 1901. That of the District, including Minhla, decreased from 250,161 in 1891 to 239,706 in 1901. Its distribution in 1901 is given in the table below:—

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Thayetmyo	192	1	106	37,599	196	−10	12,464
Mindon	708	...	251	30,350	43	−13	7,237
Kama	575	...	201	39,570	69	− 4	10,553
Minhla	490	...	290	42,120	86	+26	10,060
Sinbaungwe	1,873	...	105	23,395	12	+ 6	6,521
Allanmyo	912	1	322	66,672	73	−13	15,707
District total	4,750	2	1,275	239,706	50	− 4	62,542

The decline in population since 1891 is due for the most part to emigration into the delta country, and is not likely to continue long. Nearly 9,000 persons born in the District have migrated of late years to Ma-ubin and Pyapon, more than 6,000 to Prome, and about 4,500 to Tharrawaddy. There are two towns (THAYETMYO, the head-quarters, and ALLANMYO) with more than 10,000 inhabitants, but the number of large villages is inconsiderable. The great majority of the inhabitants are Buddhists, though Animists (for the most part Chins) exceeded 15,000 at the last Census. Hindus and Musalmāns totalled a little below 2,500 each, and there were 881 Christians, of whom the British troops stationed at Thayetmyo furnished a considerable proportion. Emigration among the able-bodied men has caused Thayetmyo to figure among the few Lower Burma Districts in which the females outnumber the males. The proportion in 1901 was 1,015 of the former to 1,000 of the latter. Burmese is spoken by 89 per cent. of the popula-

tion. The only other language used to any extent is Chin, which had over 20,000 speakers in 1901.

Race and occupation.

With the exception of 19,700 Chins, nearly the whole of the indigenous population of the District are Burmans. The majority of the Chins (about 12,000) inhabit the Arakan Yoma, and are closely allied to the Chins of Kyaukpyu and Sandoway. There is, however, also a small settlement, about 8,000 strong, to the east of the Irrawaddy in the Pegu Yoma. In all 172,300 persons, or 72 per cent. of the total population, were in 1901 classed as agricultural, and more than a quarter of this total were dependent on *taungya* (shifting) cultivation alone.

Christian missions.

The only Christian mission that works regularly in the District is the American Baptist Union, which has a school at Thayetmyo and labours among the Chins. The Society for the Propagation of the Gospel had a school in the District in 1901, but did no outside mission work. Native Christians numbered 448 in 1901.

General agricultural conditions.

Rice cultivation is confined to the shallow valleys between the low hills, which radiate through the District and form its most striking physical feature; and it is only along the Maton stream and in one or two spots in the Allanmyo township that the conformation of the country is at all suited to the growing of rice on an extended scale. At the same time the valleys secure the benefit of the drainage from the hill slopes, and, given a good rainfall, are not infertile. The monsoon is, however, so capricious, and the opportunities for irrigation from perennial streams so small, that the rice crop is seldom considerable. The hill-sides are moreover themselves cultivated for 'dry' crops, and much of the fertilizing matter which in richer country is carried into the paddy-fields is thus withheld. The system of cultivation prevalent does not present any marked peculiarities, but it may be noted that the area of the average holding (4 acres) is very small compared with the mean in other Districts. The paddy-fields have to be ploughed at the very first opportunity, and the crop planted as early as possible, to minimize the risk of failure due to the absence of rain late in the season; and for the same reason only the rapidly maturing kinds of rice are grown. For ploughing, bullocks are used; but the shallowness of the soil is against the use of the *te* (or iron plough), and the fields are usually prepared with the *tun* (or harrow), and sometimes smoothed over with the *kyandon* (or clod-crusher). A special feature is the practice of making the nurseries in waste land, apart from the holding, where the plants have the advantage of a virgin soil and the cultivator

that of a larger planting area. When the ordinary wet-season crops fails, *mayin* or hot-season rice is grown here and there (especially on the Maton stream), the water being raised from the rivers by means of ingenious undershot wheels such as may be seen on the Chindwin and the Taping. *Taungya* rice is extensively cultivated on the hill-sides. In the Mindon valley on the Maton the ground is very suitable for mixed cultivation, and great pains are taken in the production of onions. Both the large-leaved and pointed-leaved kinds of tobacco are grown, the former producing a heavier crop, the latter a finer tobacco. The plants are set out about 2 feet apart in ground well prepared with the *tun* and *kyandon*.

Chief agricultural statistics and principal crops.

The main agricultural statistics of the District for 1903–4 are given below, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Thayetmyo	192	25	1	3,341
Mindon	708	35	2	
Kama	575	50	6	
Minhla	490	41	3	
Sinbaungwe	1,873	36	...	
Allanmyo	912	85	11	
Total	4,750	272	23	3,341

Despite the meagre rainfall, the most important crop is rice, which occupied 138 square miles out of the 272 square miles cropped in 1903–4[1]. Other food-grains are millet, maize, and gram. In parts of the District millet (*pyaung*) largely takes the place of rice in a dry year, and in Minhla is almost as common as rice. In 1903–4 about 8,700 acres of maize were cropped. Sesamum is the principal oilseed. It is grown very extensively throughout the District, covering 47,000 acres in 1901, and is popular, inasmuch as it does not require a great deal of rain, and commands a high price. Cotton (12,500 acres) is also largely grown on the hill-sides, and finds a ready market in the Ywataung ginning-mills. The coarse soap, which is manufactured from the cotton-seed, is slowly finding a market, and the use of cotton-seed oil in place of sesamum oil is extending. Tobacco (5,900 acres) is increasingly cultivated in the alluvial land along the Irrawaddy and Maton rivers, the other main *kaing* or river-bed crops being onions and chillies. Experiments have been made with Havana tobacco, but have not met with as much success as in the richer silt of the delta.

[1] Excluding *taungya* areas.

The area under gardens is 4,700 acres, the greater part consisting of plantain groves.

Improvements in agricultural practice.

Cultivation extends but slowly in Thayetmyo, for there is little waste land suitable for rice, and the poor soil of the uplands requires long periods of rest. A slight expansion of the rice area may be expected when the resources of the District in the matter of irrigation are fully developed; but, apart from that, it may be said that the agricultural population and outturn have almost reached their limits.

While fully recognizing the difference between 6 per cent. and 60 per cent. interest, the Thayetmyo husbandman dislikes the inexorable punctuality with which he has to pay the instalments of advances taken from Government, and still prefers as a rule to patronize the local usurer. It is satisfactory to note, however, that in a really bad year the cultivators who have lost or sold their cattle apply freely for loans from Government. The amounts advanced under the Agriculturists' Loans Act during the two years ending 1901 were Rs. 4,270 and Rs. 3,950 respectively, and the average has risen since then to Rs. 7,000.

Cattle, &c.

Cattle-breeding is carried on throughout the District, but on a large scale only in the northern portion. There are no peculiar varieties of breed. Pony-breeding is practised to a small extent, but it is seldom that an animal of any real value is produced. Sheep are not bred outside Thayetmyo town, and goats are reared only by natives of India. The grazing-grounds are unlimited in extent, but not very suitable in character; and in many parts cattle suffer severely from want of good fodder in a dry season, for, although several fodder crops are grown, the people cannot afford to devote much land to them.

Irrigation.

There are few perennial streams, and only a few small tanks dependent on the rainfall. Wells are very little used, except for the more valuable *kaing* crops. Several irrigation schemes are under discussion, but the area which can be served by any one system, in such broken country, is comparatively small. Irrigation by means of a water-wheel is practised in some of the riverain villages. About half the irrigated area is in the Myede subdivision (watered by the Butle), and another quarter in the Kama township (watered by the Made, Pani, and Maton). In 1903-4 the area irrigated was about 23 square miles, all rice land. Of this total 20 square miles were irrigated from private canals, the remainder from tanks and wells. The fisheries of the District are small and unimportant. They brought in a revenue of a little more than Rs. 5,000 in 1903-4.

Forests.

The forest growth is, as determined by the climate, of the 'dry' *indaing* type in the north and near the river, improving in quality and density southwards and away from the river up to the Yoma on either side. On the east the Pegu Yoma and its foothills are covered with excellent teak forest, the value of which is, however, diminished by the poor floating qualities of the streams. On the west the Yoma is much higher, and the vegetation passes into the evergreen type, with climbing bamboo and towards the north the india-rubber fig (*Ficus elastica*). The greater part of the District is, however, of low elevation, and has been heavily worked for *taungya* (shifting) cultivation for so long that large trees are scarce, especially where the trade in timber has assisted in the work of destruction. The species found are therefore quick-growing soft woods, and large areas are covered by the *myin* bamboo, in which there is a large trade. Cutch is everywhere abundant, but reduced to scrub or trees not older than the *taungya* rotation. Reserves in this lower ground cover 196 square miles. Along the Yomas there are also 445 square miles of teak Reserves: in all a total of 641 square miles. The area of unclassed forests is estimated at 2,700 square miles, which gives a total forest area for the whole District of 3,341 square miles. Besides teak and cutch (*Acacia Catechu*), *pyingado* (*Xylia dolabriformis*), *in* (*Dipterocarpus tuberculatus*), *padauk* (*Pterocarpus indicus*), and other valuable timber trees are found in fair quantities. The net forest revenue in 1903-4 was about 2·6 lakhs.

Mines and minerals.

The only known mineral products are petroleum oil, clay, laterite, limestone, and steatite. Coal is said to have been extracted many years ago a few miles south of Thayetmyo at Tondaung, now, as its name implies, a centre of the lime industry. The lime is burned in kilns on the bank of the Irrawaddy, and finds a ready local market at from Rs. 10 to Rs. 15 per 100 baskets. The annual production is nearly 4,000 tons. Oil is known to exist at Padaukpin, 8 miles west of Thayetmyo town, but there is nothing to show that the oil-field is a rich one. The laterite of the District is not of a good quality. Steatite is found in the Arakan Yoma, but has not been extracted to any considerable extent. The local production of salt is forbidden, though saline earth suitable for the industry occurs in places. Near Thayetmyo, and elsewhere in the District, pottery clay is found, which is used for the manufacture of rough pots for domestic use or the local market. The *natmi*, or spirit fire, near Kama has attained a certain local celebrity. Gas of unknown origin filters here

through cracks in the earth, and is said to ignite of itself. In places small mud pagodas have been erected by the pious at the site of the phenomenon.

Arts and manufactures.

Cotton-weaving is carried on here and there throughout the District, but silk-weaving is confined to one small village in the Thayetmyo township. Wood-carving is pursued on a small scale, and has not attained any celebrity; on the other hand, the silversmiths of Thayetmyo town produce beautiful work, equal to the best that Rangoon can show. They display taste in conception and great skill in execution, and their reputation is well deserved. The rough pottery of the District has no outside sale, but the manufacture of coarse mats woven from split bamboos forms a source of livelihood for a considerable section (over 2,500) of the population. These mats are made in two sizes and are exported in large quantities to Lower Burma. The establishment of a steam cotton-ginning mill at Ywataung in 1896 has practically extinguished the old hand-gin industry. There were said to be 4,000 of the old-fashioned machines in 1881, but these now have mostly disappeared. The Ywataung factory is managed with some enterprise. The cleaned cotton is baled by hydraulic pressure and sent to the Rangoon market; the seed is then crushed and the oil extracted. A coarse soap is produced from the seed, but has not yet found a ready market. During the cotton harvest the mills run day and night, and the hands in the busy season number hundreds. The price of raw cotton at the mill gates is about Rs. 20 per 100 viss. In the slack cotton season the power is applied to saw-mills. Saw-pits unaided by steam have not been altogether ousted, and several are profitably worked at Thayetmyo and Allanmyo, the sawn timber being sold locally.

Commerce and trade.

The principal imports and exports enter and leave the District by the steamers of the Irrawaddy Flotilla Company. Of the former the most important are paddy, rice, fish, *ngapi*, oil, and piece-goods. The chief exports are mats (bamboo), cotton, sesamum oil, tobacco, onions, lime, and cattle. Thayetmyo, Allanmyo, and one or two of the southern river villages are the main trade centres, from which the goods are distributed by cart, and in the rains by the Maton stream. Cattle are brought in during the dry season from Taungdwingyi overland, and are taken for sale between Allanmyo and Prome by the Government road. The cotton goes to Rangoon, the trade in it being practically in the hands of a single Indian firm, and natives of India have secured a liberal

share of the petty business of the two main bazars of the District.

Means of communication.

There are no railways, but the steamers of the Irrawaddy Flotilla Company connect with the railway termini at Prome, Myingyan, Sagaing, and Mandalay. The ferry steamers between Thayetmyo and Minbu in the north, and Prome in the south, touch at the principal riparian villages, and there is a small steam-ferry service between Thayetmyo and Allanmyo on the east bank. Of the tributaries of the Irrawaddy, the Maton is the only stream which has any considerable boat traffic. During the rains boats go beyond Mindon, which during the dry season obtains its supplies by the Public Works road running westwards from Thayetmyo and metalled for half its length of 45 miles. The other main roads are those from Ywataung to Tindaw (38½ miles), on the way to Toungoo, with a branch from Kyaukpadaung to Thanbulla (10 miles). Thirty miles of the Prome-Myede road lie within the District. In addition to these, 165 miles of track are maintained, following the line of what were first designed as military roads in the interior. All the roads are kept up from Provincial funds.

Famine.

There is no record of any famine in the District. In 1896–7 there was a bad season in the Minhla subdivision, but the people refused to accept work offered to them at famine-work rates. Cattle-breeding in this portion of the District is carried on extensively, and it is probable that the people could tide over one year in any circumstances short of complete failure of both the main crops. The labour market in the delta is open to all, and the high wages (paid generally in kind) attract many agriculturists from the southern half of the District even in a good year, while in a bad year nearly all the men move southwards.

District subdivisions and staff.

The District is divided into three subdivisions, Thayetmyo, Minhla, and Myede, each in charge of a subdivisional officer; and six townships, THAYETMYO, MINDON, KAMA, MINHLA, SINBAUNGWE, and ALLANMYO, of which the first three belong to the Thayetmyo, the fourth and the fifth to the Minhla, and the sixth to the Myede subdivision. Thayetmyo forms (with Minbu and Magwe Districts) a Public Works division with two subdivisional officers in the District, and is the head-quarters of the Thayetmyo Forest division. The number of village headmen at the commencement of 1904 was 705, but a few circle *thugyis* are left in the District.

Civil and criminal justice.

Thayetmyo is in the jurisdiction of the Divisional and Sessions Judge, Bassein Division. The Deputy-Commissioner

is District Judge. There are no whole-time township judges, as in the adjoining Districts of Lower Burma; and no additional township judges except in the township court, Thayetmyo, where the treasury officer sits as additional judge, and exercises Small Cause Court powers in the town. The subdivisional officer, Myede, has Small Cause Court jurisdiction in Allanmyo. Habitual cattle-thieves form a large portion of the population on the east of the river. Murders are very rife, especially during the hot season. Dacoity and robbery are not common, but gambling in the southern part of the District is almost universal, and is the subject of frequent prosecutions. Civil litigation is mainly concerned with small money or land suits.

Revenue administration.

Before the annexation of Pegu there was no real system of land revenue calculated on the area of cultivation, and it is not known how much of the revenue transmitted to the capital (which amounted in the year before annexation to just over a lakh of rupees) consisted of land tax. Immediately after the acquisition of the southern portion of the existing District an acre assessment was introduced; but the scheme did not work satisfactorily and, pending a proper survey, a settlement was offered to the people, under which each man was required to pay for a period of five years the same sum as he had paid in the year previous to settlement, an arrangement which was eagerly accepted. Before 1872 there were two such quinquennial settlements of revenue. The rates at this time for rice land were 4, 6, 8, and 12 annas and R. 1 per acre, with a fallow rate of 2 annas; and it was not till 1891, long after the Districts farther south had been surveyed and settled, that survey operations were started. The survey was completed in 1892, and comprised most of the rice-producing tracts in the Lower Burma portion of the District. In 1900 and 1901 this area was settled. Before this settlement the maximum and minimum rates per acre had been, for rice, 8 annas to Rs. 1-8-0, and for crops of other kinds from 12 annas to Rs. 1-8-0, while solitary fruit trees were taxed at from 3 to 4 annas each. The rates introduced in 1902 were—on rice lands, 8 annas to Rs. 2-8-0 per acre; on *ya* or uplands, R. 1 to Rs. 2; on *kaing* crops, Rs. 2 to Rs. 4; on tobacco, Rs. 2-8-0; on gardens, Rs. 1-8-0 to Rs. 3; and on solitary fruit trees, 4 annas each. The highest rice rates are levied in the lower valley of the Maton, the lowest in the distant *kwins* in the upper valley of the Maton and its tributary the Mu. In the unsettled portions the revenue rolls are prepared each year

by the headmen, their measurements being checked to a certain extent by the supplementary survey staff.

The following table shows, in thousands of rupees, the growth of the revenue since 1880–1:—

	1880–1.	1890–1.	1900–1.	1903–4.
Land revenue . .	1,10	1,06	1,39	2,36
Total revenue . .	4,65	4,87	5,02	6,01

Up to 1901–2 both capitation tax and *thathameda* were levied in Thayetmyo, the former in the Lower Burma, the latter in the Upper Burma, portion of the District. In 1902–3 capitation tax was levied over the whole District, and the demand was Rs. 2,20,000.

Local and municipal government

The District cess fund, administered by the Deputy-Commissioner for the up-keep of local institutions, had an income of Rs. 35,400 in 1903–4, the chief item of expenditure being education (Rs. 6,800). THAYETMYO and ALLANMYO with Ywataung are the only municipalities.

Army.

Thayetmyo is ordinarily garrisoned by the head-quarters and five companies of a British infantry regiment and a regiment of native infantry. The old fort at Thayetmyo, which is on the river bank at the north of the cantonment, is now a military prison. There are small detachments of the Upper Burma Volunteer Rifles at Thayetmyo and Allanmyo.

Police and jails.

The civil police force consists of a District and an Assistant Superintendent, 4 inspectors, 75 head constables and sergeants, and 475 constables. There are 15 police stations in the District, and 23 outposts. Bodies of military police are stationed at Thayetmyo, and at the head-quarters of each township, and during the open season assist in the patrolling of the rural areas.

The Central jail at Thayetmyo has accommodation for 1,197 prisoners, though the average population in 1903 was only 661. Since the use of river water, which is pumped up from the river by the prisoners, the jail has been remarkably healthy. The industries carried on within its walls are carpentry, blacksmith's and tinsmith's work, bamboo and cane-work, paddy-husking, oil-pressing, cotton-cleaning, skin-tanning and curing, coir-pounding, mat and rope-making, and stone-breaking.

Education.

In the matter of education Thayetmyo ranks fairly high among the Districts of Burma. In 1901 the proportion of those able to read and write in 1,000 of each sex was 48·7 per cent. in the case of males and 3·8 in the case of females, or

26·1 for both sexes together. Primary education, as elsewhere in Burma, is mainly provided by the monastic schools which are to be found in most villages. A large number of these have submitted to the guidance of the Educational department with great advantage. The number of pupils has been rising steadily. In 1891 it was 6,737, and in 1901 it totalled 6,896. In 1903–4 there were 11 secondary, 117 primary, and 354 elementary (private) schools, with an attendance of 8,544 pupils (including 523 girls). An Anglo-vernacular school for Chins is managed by the American Baptist Mission, and two Anglo-vernacular schools are maintained or aided by the municipalities of Thayetmyo and Allanmyo-Ywataung. The other secondary schools are vernacular. The Provincial expenditure on education in 1903–4 was Rs. 3,300. The District cess fund spent Rs. 6,800, and municipal funds Rs. 2,200 during the same year, and the receipts from fees amounted to Rs. 4,300.

Hospitals. There are 4 hospitals with accommodation for 88 in-patients. In 1903 the number of cases treated was 36,199, of whom 1,367 were in-patients, and 1,125 operations were performed. The total expenditure was Rs. 32,000, towards which municipal funds contributed Rs. 29,000, and the District cess fund Rs. 2,000.

Vaccination. Vaccination is compulsory only in Thayetmyo town. In 1903–4 the number of persons successfully vaccinated was 15,461, representing 65 per 1,000 of population.

[Colonel H. Browne, *Statistical and Historical Account of the Thayetmyo District* (1873); W. V. Wallace, *Settlement Report* (1902).]

Thayetmyo Subdivision.—Subdivision of Thayetmyo District, Burma, consisting of the THAYETMYO, MINDON, and KAMA townships.

Thayetmyo Township.—Township of Thayetmyo District, Burma, lying between 19′ 15° and 19′ 30° N. and 94° 48′ and 95° 13′ E., on the western bank of the Irrawaddy, with an area of 192 square miles. The population was 41,651 in 1891, and 37,599 in 1901. The decrease took place in Thayetymo cantonment, and in the rural areas of the township only, while the inhabitants of the Thayetmyo municipality increased during the decade. The township contains 106 villages and one town, THAYETMYO (population, 15,824), the head-quarters of the township and District. Outside the limits of the town the inhabitants are almost wholly Burmese-speaking. The area cultivated in 1903–4 was 25 square miles, paying Rs. 19,000 land revenue.

Mindon.—Western township of Thayetmyo District, Burma, lying between 19° 3′ and 19° 30′ N. and 94° 30′ and 94° 56′ E., with an area of 708 square miles. The township, which is undulating in the east and hilly in the Arakan Yoma country in the west, contains 251 villages. It had a population of 35,040 in 1891, and 30,350 in 1901. Emigration to the more fertile lands of the delta accounts for the falling off during the decade. The head-quarters are at Mindon, a village of 803 inhabitants, picturesquely situated on the Maton river within a few miles of the Arakan Hills. The total number of Chins is about 4,000. They inhabit the Arakan Yoma, which covers the western half of the township. About 35 square miles were cultivated in 1903–4, paying Rs. 29,000 land revenue.

Kama.—South-western township of Thayetmyo District, Burma, lying between 18° 52′ and 19° 18′ N. and 94° 39′ and 95° 13′ E., and extending from the Irrawaddy in the east to the Arakan Yoma on the west. The area of the township, which is intersected by low hills, is 575 square miles, and it contains 201 villages. The population in 1891 was 41,383, and in 1901, in consequence of emigration to the delta, it had fallen to 39,570 (including 2,500 Chins). The head-quarters are at Kama (population, 1,779), a village situated on low hills on the right or western bank of the Irrawaddy. In 1903–4 the area under cultivation amounted to 50 square miles, paying Rs. 53,000 land revenue.

Minhla Subdivision.—Subdivision of Thayetmo District, Burma, consisting of the MINHLA and SINBAUNGWE townships.

Minhla Township.—Northernmost township of Thayetmyo District, Burma, lying between 19° 30′ and 19° 59′ N. and 94° 24′ and 95° 12′ E., and extending from the Irrawaddy to the Arakan Yoma in the west, with an area of 490 square miles. It contains 290 villages, the most important of which is Minhla (population, 2,553), the head-quarters, on the right or west bank of the Irrawaddy close to the border of Minbu District. The population was 33,416 in 1891, and 42,120 in 1901. It is the only township of the District which has increased considerably in population during the past decade. There are nearly 6,000 Chins, who inhabit the hilly country to the west. East of the Yoma, towards the Irrawaddy valley, the country is cut up by low hills. The area under cultivation in 1903–4 was 41 square miles, paying Rs. 36,000 land revenue. In 1902–3 capitation tax took the place of *thathameda* as the main source of revenue.

Sinbaungwe.—North-eastern township of Thayetmyo District, Burma, lying between 19° 30′ and 19° 47′ N. and 95° 10′

and 95° 40′ E., and stretching from the Irrawaddy eastwards to the confines of Magwe and Yamethin Districts, with an area of 1,873 square miles. Its head-quarters are at Sinbaungwe, a village of 2,394 inhabitants, on the left or east bank of the Irrawaddy. The country is dry and undulating, and sparsely inhabited. The population was 22,108 in 1891, and 23,395 in 1901, distributed in 105 villages. *Thathameda* was the main source of revenue up to 1902–3, when it was replaced by capitation tax. The area under cultivation in 1903–4 was 36 square miles, paying Rs. 36,000 land revenue.

Myede.—South-eastern subdivision of Thayetmyo District, Burma, conterminous with the Allanmyo township, and lying to the east of the Irrawaddy, between 18° 55′ and 19° 30′ N. and 95° 9′ and 95° 52′ E. It has an area of 912 square miles, and the population was 76,563 in 1891 and 66,672 in 1901. The township contains one town, ALLANMYO (population, 10,207), the head-quarters, and 322 villages. The rainfall is precarious, and the large decrease in inhabitants since 1891 is due to emigration to the rich delta Districts of the Irrawaddy Division. About one-eighth of the population are Chins, inhabiting the slopes of the Pegu Yoma, which separates the township on the east from Toungoo District. The township, which is intersected by low hills, contained 85 square miles under cultivation in 1903–4, paying Rs. 63,000 land revenue.

Allanmyo Town.—Head-quarters of the Myede subdivision of Thayetmyo District, Burma, situated in 19° 22′ N. and 95° 13′ E., on the east bank of the Irrawaddy, almost immediately opposite Thayetmyo, the District head-quarters, and connected with it by a steam-launch ferry. Population (1901), 10,207. Allanmyo, so called after Major Allan, who demarcated the frontier line in 1854, has sprung up to the south of the old Burmese fort of Myede. It gradually became a trade centre, and up to the time of the annexation of Upper Burma was an important frontier station. The affairs of Allanmyo, together with those of the adjoining urban area of Ywataung, have been administered since 1900 by a municipal committee. The income and expenditure of the municipal fund in 1903–4 were Rs. 28,000 and Rs. 21,000 respectively. The former is derived almost entirely from the municipal bazar. The chief items of expenditure were Rs. 4,100 spent on conservancy, and Rs. 5,100 on the hospital. Allanmyo is one of the main centres of the cotton trade of the Province, and has a steam factory for cotton-ginning, oil-pressing, and the manufacture of cotton-oil soap.

Thayetmyo Town.—Head-quarters of Thayetmyo District, Burma, situated in 19° 20′ N. and 95° 12′ E., in the centre of an undulating plain on the right bank of the Irrawaddy, about 11 miles south of the old frontier between Upper and Lower Burma, and immediately opposite the town of Allanmyo, with which it is connected by a launch ferry. The name Thayetmyo in its present form means 'mango city' (*thayet* = 'mango'); but this is said to be a corruption of *That-yet-myo* ('city of slaughter'), a name given to the town to commemorate the murder of his sons by a ruler of olden days, who feared they would rebel on attaining manhood. The town is said to have been founded about 1306 by a son of the last king of Pagan, and contains one of the Shwemoktaw pagodas which is alleged to have been erected by Asoka, but is not the repository of any antiquities. On the annexation of Pegu the town contained only 200 or 300 houses, but it rapidly grew after becoming a military station. During the ten years ending 1901 the population fell from 17,101 to 15,824, partly owing to the decrease of the garrison, which now consists of the head-quarters and wing of a British regiment and a native regiment. The cantonment, which occupies a well-timbered area close to the river bank, contains a fine set of barracks, built in 1854. The small fort north of the cantonment is now used as a military prison. The station is one of the healthiest in India for British troops, the death-rate in 1901 being only 2½ per thousand. In April and May the heat is very great, and the glare off the sandbanks that extend along the river face adds considerably to the discomfort of the residents. At this season the surroundings of the station have a very dried-up and parched appearance, but with the rains the verdure reasserts itself, and the cold season is distinctly pleasant. The rainfall is moderate, averaging 36 inches per annum.

The town has been administered since 1887 by a municipal committee, which at present consists of 3 *ex officio* and 9 nominated members. The elective system is not in force. The municipal income and expenditure during the ten years ending 1901 averaged between Rs. 30,000 and Rs. 31,000. In 1903–4 the income amounted to Rs. 30,000 (house and land tax, Rs. 8,300; markets, &c., Rs. 16,700), and the expenditure to Rs. 54,000, the chief items being conservancy (Rs. 8,700) and hospital (Rs. 28,000). The annual income and expenditure of the cantonment fund amounts to about Rs. 13,000. A new municipal hospital has replaced the old

one burnt down in 1900. The municipal school educates up to the seventh standard, and has an average attendance of 140. There is a large Central jail on the outskirts of the town. Thayetmyo is an important station of call for river steamers, but it has achieved no special importance as a trade centre. The best known of its industries is silver-work, which can hold its own with that of any other town in Burma.

Boundaries, configuration, and hill and river systems.

Pakokku District.—District in the Minbu Division of Upper Burma, lying between 20° 48′ and 22° 50′ N. and 93° 59′ and 95° 24′ E., with an area of 6,210 square miles. It is pear-shaped, tapering off towards the north, and is bounded on the north by the Upper and Lower Chindwin Districts; on the east by the waters of the Chindwin and Irrawaddy, which separate it from Sagaing and Myingyan Districts; and on the south by Minbu District; the lofty barrier of the Chin Hills forms its entire western border. The District is divided into two roughly equal parts east and west by the masses of the Pondaung and Tangyi ranges, which rise to about 3,000 or 4,000 feet in the north, and diminish in the south to about 2,000 feet. In the extreme west between the Pondaung and the Chin Hills lies a long narrow valley, running north and south, and divided towards its southern end by a watershed. The country to the north of this divide is drained by the Myittha, which rises in the Pakokku Chin Hills, enters the District from the west, and flows northwards into the Upper Chindwin District, and by the Myittha's southerly affluent, the Maw. The valley to the south of the watershed is for the most part drained by the Yaw river and its numerous tributaries. East of the Pondaung is a strip of country, 15 miles in width in the north and widening to 45 miles in the south, bounded on the east by the Tangyi Hills, which run in a general southerly direction right down the centre of the District. The whole of it is watered by the Yaw river, which comes in from the west, bends southwards, and flows into the Irrawaddy in the extreme south of the District. North of the point where the Yaw enters this strip is the valley of the Kyaw; south of this point the ground rises from the river into a mass of hills and narrow valleys, only the southern edge of which is inhabited to any extent. To the east of the central stretch of hill and valley the country varies considerably. Near the Irrawaddy and Chindwin are large alluvial plains, transformed in places into lagoons by the annual rise of the rivers. Behind these plains the surface rises gradually, and becomes more and more broken

as it approaches the hills, the whole area being arid, and water being very difficult to obtain. In this portion of the District is a small isolated range running north and south, and culminating in the Shinmadaung, 1,757 feet in height, about 20 miles due north of Pakokku town.

The eastern portion is covered with the alluvium deposited by the Irrawaddy and Chindwin. On the west of the Irrawaddy soft sandstones of Upper Tertiary (pliocene) age occupy a large area; they are characterized by the presence of fossil wood in large quantities, and in the Yaw Valley by mammalian bones. On the right bank of the Irrawaddy opposite Pagan the miocene (Pegu) beds are brought up by an anticlinal fold, and form a long narrow ridge running north and south parallel with the river. It is here, in the neighbourhood of Yenangyat, that the petroleum area is situated. Twelve oil-sands have been recognized in this region, all occurring in the lower or Prome stage of the miocene beds. Geology.

The flora of the arid areas in the east of the District is of the type common to the dry zone of Upper Burma, and includes cactus and other vegetation that thrives without much moisture. In the hills in the west bamboos and teak are common, and stretches of pine forest occur on the higher ridges. Botany.

Barking-deer, *sāmbar*, bear, wild hog, leopard, *tsine* or *hsaing* (*Bos sondaicus*), and *pyaung* (bison) are always to be found in the jungles of the District. Wild elephants often appear on the slopes of the remoter ridges, and the thick forests which clothe the hill ranges are a resort for tigers. Fauna.

The dry part of the District east of the Pondaung is healthy, but hot. West of the Pondaung the rainfall is much heavier, and the heat is not so oppressive; but during the rains dense fogs are frequent in the valleys, which are excessively unhealthy, especially at the beginning and end of the wet season. Few visitors escape fever, and the residents themselves are not free from this scourge. What is known as Yaw fever is of an even more virulent type than the well-known fever of Arakan, and frequently attacks those who have returned to the valleys from the healthier parts of the District. The cold season is crisp and pleasant; but during April, May, and June the thermometer in the dry parts rises considerably above 100°, as much as 107° being by no means an uncommon record. A temperature of 118°, recorded in the Pakokku courthouse, has so far been looked upon as the maximum. Climate and temperature.

The rainfall in the dry parts of the District is light and Rainfall.

capricious; and here there is always a great scarcity of water, which in many places has to be carted for miles. The villages in the interior of the Pakokku and Myaing townships, particularly in the latter, have to depend almost entirely on tanks for their water-supply. West of the Pondaung the rainfall is much higher, but the distribution is uneven; the Kyaw valley enjoys a fairly ample supply, while the Gangaw township receives somewhat less, and the share of the Tilin township is even smaller. The average of the five years ending in 1902 was 23 inches in Pakokku, 35 inches in the central portion (Pauk), and 48 inches in the Myittha valley (Gangaw).

History. Prior to the annexation of Upper Burma, Pakokku was only a small fishing village, and its *thugyi* was under the control of the *wun* of Pakangyi. Though legends give what seem obviously fanciful origins for its name, it is not even mentioned in old maps, and the Irrawaddy Flotilla steamers only commenced to make it a place of call of recent years. Formerly all steamers called at Kunywa, 4 miles above Pakokku, where one of the branches of the Chindwin river joins the Irrawaddy, as for a long time Pakokku was cut off from the main channel by a huge sandbank, and Kunywa was then the main trading centre. In 1885, however, the sandbank disappeared, the river resumed its old course opposite Pakokku, and from that time trade steadily found its way to Pakokku, while Kunywa shrank into an unimportant village. The rise and growth of Pakokku have been particularly marked since the British occupation.

Under Burmese rule the Pakangyi *kayaing* corresponded with the present Pakokku District, and included the *wun*-ships of Pakangyi, Yaw Lemyo, and Pagyi Taik. At the time of annexation the area now forming the District was part of Pagan and Myingyan. During 1886 it was in a very unsettled state, as the greater part of it was dominated by the Shwegyobyu prince, who had been joined by the local Burman official, the *Kayaingwun* of Myingyan. A column was sent up in 1886 to deal with the insurgents, civil officials were stationed at Pakangyi, and two small posts were built at Pakokku and Yesagyo. The rebels were restrained to a certain extent by a military post at Myaing, but this part of the District was not at peace till a post was established at Pakangyi. The Pagan District was abolished and the Pakokku District formed in 1888 with its head-quarters at Pakokku. The Yaw country in the west was still unsettled even then, being overrun by

two of the Shwegyobyu pretender's adherents, an influential local official called Ya Kut and a dacoit leader called Tha Do. Both were got rid of, however, during the course of the year.

Archaeology.

Old pagodas abound in the District. The most noticeable in the neighbourhood of Pakokku are the Shwegu pagoda in the town itself, the Tangyiswedaw pagoda opposite Pagan on the Irrawaddy, and the shrines at Kunywa, Shinmadaung, and Thamaing. The first mentioned is supposed to occupy the site of the shrine erected by Alaungsithu, king of Pagan, over the grave of his queen, who died in childbirth. Grants of *wuttugan* land were made in 1887 to the trustees of the Tangyiswedaw pagoda, as well as to those of three famous images of Gautama known as the Sithushin, the Shinmadaung, and the Datpaung Myezu at Pakangyi in the Yesagyo township. The Tangyiswedaw pagoda is said to have been erected by Anawrata of Pagan to enshrine a tooth of Gautama brought by him from China; the three Pakangyi images are of sandalwood, and date back to the early years of the twelfth century. They are reputed to have been put up by Narapadisithu, the famous warrior king of Pagan. They were removed to Mandalay in 1884, but were restored to Pakangyi two years later. Opposite Thamadaw in the Pauk township, on the west bank of the Yaw river, are two famous pagodas, the Shwepaunglaung and Shwemoktaw, which mark the site of a small pagoda said to have been erected by Dhamathawka, king of Pagan in 1091. They were restored by Narapadisithu a century later, and the anniversary of their restoration in the month of Tabaung used to be regularly celebrated by a festival till the time of the British occupation. The festival is now being revived.

The people.

The population increased from 311,959 in 1891 to 356,489 in 1901. Its distribution in the latter year is shown in the table on the next page.

The table shows that there has been a slight increase since 1891 in the townships bordering on the Chin Hills in the north-west of the District, a diminution in the southern townships, from which the people appear to have moved to some extent to the better irrigated tracts in the north of Minbu, and a substantial rise in the north-east, which has had the benefit of immigration from Myingyan and elsewhere. In the valleys of the Irrawaddy and Chindwin the population is dense, but in the hills to the west the villages are scattered. Burmese is spoken by 96 per cent. of the people.

Race and occupation.

The majority of the population is Burman or quasi-Burman. About 6,500 Chins occupy the western townships in the valleys of the Yaw and Myittha rivers. The Taungthas, who numbered 5,700 in 1901, inhabit the Yaw country and are peculiar to the District. In dress the men resemble the Burmans, but the women are distinguished by a white petticoat and a dark plaid sash of cotton worn under the jacket round the body from chest to hips. Their dialect is distinct from that of the other residents of the Yaw tract, and contains words which have an affinity with the Baungshe or Lai dialect of the Chins. They profess both Buddhism and *nat*-worship, are industrious, and make good agriculturists. No very satisfactory

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Pakokku . .	386	1	223	68,344	177	− 4	18,158
Yesagyo . .	564	...	238	87,797	156	+ 63	23,950
Myaing . .	825	...	295	71,976	87	+ 53	14,260
Pauk . . .	1,490	...	190	41,021	28	+ 12	8,223
Saw . . .	1,200	...	117	19,868	17	− 11	5,066
Seikpyu . .	559	...	152	31,100	56	− 34	4,527
Gangaw . .	698	...	118	24,200	35	+ 7	6,069
Tilin . . .	488	...	120	12,183	25	+ 11	2,744
District total	6,210	1	1,453	356.489	57	+ 14	82,997

theory as to their origin has yet been put forward. The Yaws of the same region, who speak or spoke a dialect of their own, are now practically indistinguishable from their Burman neighbours. They have a reputation as magicians. Natives of India numbered in 1901 only 1,997, Hindus predominating. More than half of this total are engaged in trade in Pakokku town, or have found employment in the Yenangyat oil-fields as traders and coolies. The number of persons returned as directly dependent on agriculture in 1901 was 221,494, or 62 per cent. of the total population. Of this number 50,562 in the western hill areas were dependent on *taungya* cultivation.

Christian missions.

There are less than 200 Christians, of whom 106 are natives. The only Christian mission is that of the Wesleyans at Pakokku.

General agricultural conditions.

The alluvial soil is rich in the riverain and island lands, which produce peas, chillies, tobacco, gram, beans, and a number of other vegetables. In the highlands away from the

river it is sandy in composition, with an admixture of red clay and gravel, and fit for *ya* cultivation only. The surface of the country is in general undulating and hilly, abounding in ravines and nullahs leading into the various streams. The system of cultivation is uniform throughout the District. The fields are tilled with a four-toothed harrow, lengthwise once, then diagonally once, and again breadthwise once. After this the surface is treated with a three-toothed harrow, first diagonally, then lengthwise or breadthwise, and again diagonally; finally the soil is made even with the harrow stock. For paddy-fields wooden harrows are used with teeth 8 inches long; for upland fields the length of the teeth is increased to 12 inches.

The crops are of the ordinary dry zone kind. *Kaukyin* (early) rice, maize, early sesamum, and *taungya* rice are sown in May and June and reaped in December. For the *kaukkyi* rice crop operations commence in June and finish in January, while *lu* (millet), cotton, *jowār*, late sesamum, wheat, and gram are sown from July to October and reaped from December to February. The last named is a specially important staple in Pakokku. Maize is grown to a great extent, not only for the sake of the grain, but for the inner leaves of the sheath, which are used as wrappers for cheroots. This substance when ready for the market is called *pet*, and large quantities of it are exported. The *kyun* (or island) crops are sown from September to December in the rich alluvial soil the rivers leave behind them as they fall, and are reaped in March and April. They consist of various kinds of pulse, tobacco, and vegetables. The *mayin* or hot-season rice crop is planted from December to February in low-lying inundated hollows, and reaped in March and April.

The following are the main agricultural statistics for 1903–4, in square miles:— Chief agricultural statistics and principal crops.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Pakokku . .	386	124	...	3,785
Yesagyo . .	564	134	2	
Myaing . .	825	215	...	
Pauk . .	1,490	42	6	
Saw . .	1,200	23	9	
Seikpyu . .	559	107	3	
Gangaw . .	698	22	1	
Tilin . .	488	6	1	
Total	6,210	673	22	3,785

The staple crop is *jowār*, which covered 319 square miles in 1903–4, and forms the chief means of subsistence of the inhabitants of the poorer parts of the District Rice, the food-grain of the people in the towns and the richer rural areas, was grown on 157 square miles. Gram occupied 30,000 acres, between one-third and one-half of the total for the whole Province. Pulse of various kinds covered about 33,000 acres, maize 23,200, and sesamum 32,600, and 4,900 acres were under tobacco. Garden cultivation is but little practised; but some betel-vines are grown in the Yesagyo township.

Improvements in agricultural practice.

Cultivation is being extended generally, but it varies with the rainfall of the year, and depends to some extent on the manner in which the islands left by the river as it falls form in the channel. This island land is eagerly sought by the villagers for the cultivation of rice, maize, wheat, tobacco, and various kinds of vegetables, and differs from year to year in position and extent. The local cultivators do nothing to improve the quality of their crops, and there has been no experimental cultivation to speak of in the District. American maize was grown for a time tentatively, but the husk proved too coarse for cheroot-covers. Virginia and Havana tobacco have also been tried in some parts, but can command no market value, as the flavour is disliked by the Burmans. Advances are made under the Agriculturists' Loans Act to villagers who have lost their plough cattle by disease, or have suffered in consequence of a bad harvest. The people appear fully to understand and appreciate the advantages to be derived from these loans, which during the past few years have averaged about Rs. 10,000 annually.

Cattle, &c.

There are no special breeds of cattle or other live-stock, but the District produces fairly good beasts, and about 500 head of cattle are exported annually to Lower Burma, where they are readily sold for high prices. No special grazing-grounds are set apart for cattle, the jungles near the villages supplying all that is needed for the greater part of the year, though in the interior where fodder and water are scarce the feeding and watering of the live-stock is by no means an easy matter in the hot season.

Irrigation and fisheries.

Channels or canals are dug by the villagers to irrigate their fields from the beds of the Yaw and Myittha rivers. The level of the streams is raised by means of a dam constructed of branches of trees and plaited bamboo work, and plastered over with mud and stones. The stream may carry away the dam from time to time, but the agricultural community

re-erect the obstruction, each cultivator who has irrigable land subscribing his quota of labour. An artificial waterway, known as the Saw *myaung*, was constructed in the Yesagyo township by the people about forty years ago, to let the water from the Chindwin river on to their lands. It was in time neglected and allowed to silt up, but on a representation from the villagers in 1903 a portion of it was redug near Pakannge with satisfactory results. This canal irrigates a large natural depression about 8 miles by 2, extending near the river from Yesagyo to Kunywa in the Pakokku township. Tanks and wells are not utilized for irrigation purposes. The area irrigated in 1903–4 was 22 square miles, practically all rice land, of which 19 square miles drew their supplies from private canals. About two-thirds of the irrigated area lies in the Pauk and Saw townships, the rest being situated for the most part in Yesagyo and Seikpyu. There are fisheries in the Pakokku, Seikpyu, and Yesagyo townships, formed by the overflow from the Irrawaddy and the Chindwin. They furnish most of the fishery revenue, which in 1903–4 amounted to nearly Rs. 11,000.

In the Myaing and Pakokku townships, and over the greater part of the Seikpyu township, forest vegetation is not prolific. What there is belongs to the class generally known as dry forest, with stunted and scrubby growth. Farther to the north and west the forest passes gradually into the upper mixed class, and becomes moister, but is dotted with patches of *ingyin* (*Pentacme siamensis*). In the drainage of the Yaw, teak is plentiful not only on the lower slopes of the Chin Hills, but also on the watershed of the Yaw and Maw rivers and on the Pondaung range north of 21° 30′ N.; natural regeneration, however, is not good. All over this area cutch is plentiful, and *padauk* (*Pterocarpus indicus*) is well represented. A noticeable feature of the Yaw forests is the prevalence of *than* (*Terminalia Oliveri*). The Gangaw forests to the east of the Maw and Myittha rivers are very rich in teak, but to the west of these streams large stretches of *indaing* or *ingyin* forest occur, and teak is confined to the beds of the streams. *Padauk*, cutch, and *pyingado* (*Xylia dolabriformis*) are plentiful in the Gangaw subdivision, and pines are found in places on the hills. Throughout the District *myinwa* (*Dendrocalamus strictus*) is the prevailing bamboo, but *lin* and *kyathaung* (*Bambusa polymorpha*) are found here and there on the moister slopes. The Maw and Myittha are useful for floating timber, but the Yaw, owing to silting in its lower reaches, is very uncertain. The Forests.

forest division contains 1,266 square miles of 'reserved,' 51 of protected, and 2,583 of unclassed forest. Of the 'reserved' forest, 115 square miles are in the Chin Hills outside the limits of the District. The gross forest receipts in 1903-4 were Rs. 1,22,000, and the net revenue Rs. 56,000.

Minerals. Earth-oil is found in workable quantities at Yenangyat on the right bank of the Irrawaddy, almost opposite Pagan, and has also been traced in small deposits elsewhere in the District. The Yenangyat oil-wells were worked until twelve years ago by a few Burmans. Women then did most of the extraction, while men performed the necessary digging; but the process was clumsy and the out-turn inconsiderable. The oil-bearing tract has since then been surveyed, and divided into blocks, each one mile square. The oil-fields at Yenangyat are now being worked by three concerns, whose working staffs consist of about 20 Europeans and 600 Burmans and natives of India. In all 32 blocks are at present held by the Burma Oil Company under leases from Government, 11 by the Rangoon, and 8 by the Minbu Oil Company. Prospecting licences have also been granted to the Minbu and Burma Oil Companies and to others. The royalty paid in 1901-2 on the oil extracted amounted to Rs. 1,43,000. The industry is expanding rapidly, and in 1903-4 the petroleum revenue had risen to Rs. 2,93,000. Coal crops out at many places on both sides of the Pondaung range and also near Myaing, but all the seams are too shallow to be worth working. There are salt springs near Yemyet, about 17 miles west of Pakokku, near Pindaung, west of Pauk, and at several places in the Yaw country; but the out-turn is insignificant. Sandstone is quarried at Taungu near the Shinmadaung, and steatite in the neighbourhood of Saw. The former yields a royalty of Rs. 1,000 to Government annually. Sandstone from the Taungu quarries is found all over Pakokku, and in many adjacent Districts, in the form of paving-stones, well-copings, pagoda ornaments, troughs, and the like. There are steatite or soapstone quarries on the Kadin stream 6 miles west of Saw. They are difficult of access and are now being worked by a native of India. Near Myaing are traces of old iron-workings, but the ore is not judged worth extracting now. Iron used to be mined at Tonbo near Chaungzongyi in the Myaing township, and also at Tonbo in the Wetthet circle of the Tilin township; and an attempt was made to revive the iron industry at the latter place, but without success. Gold-washing on a small scale was carried on up to the time of annexation in the Bahon stream at Chaungzongyi in the north of the District.

The principal handicrafts are boat-building at Pakokku, and cart-building at Myotha in the Myaing township. The boat-building industry is very extensive, and supplies the wants of a good many of the Irrawaddy population. Myotha furnishes carts to the whole of Pakokku, as well as to adjacent areas. Hand rice-mills and brass-work are turned out at Pakokku, and cotton and silk-weaving is carried on to some extent in various parts of the District. The silk industry is mainly in the hands of the Taungthas and Chins of the Gangaw subdivision, but is not profitable, as the silk turned out is coarse and inferior in quality to that imported from Mandalay. The dyeing and weaving of the well-known Yaw waistcloths is, however, carried to the length of a fine art, for which the people in those parts of the District are famous all over Burma. Silk as well as cotton enters into the composition of these garments. The dark-blue dye that forms one of their chief characteristics is prepared from a plant of the indigo species which is cultivated locally. The principal products of the brass-workers of Pakokku are small bells and lime-boxes, made of different alloys of brass variously arranged. When ready for the final process they are placed in a heated earthen vessel underground, when the colour of the various alloys becomes changed, apparently by oxidization, the result being a neat inlaid pattern. Similar work is also produced in alloys of gold or silver, but there is no ready market for it, and the workers cannot afford to sink capital in unsold goods. Pottery and wood-carving are carried on at Pakokku, but not to any great extent. A good deal of mat-weaving is done, but only for local use. The jaggery industry is an important one. Jaggery sugar is manufactured by boiling down the unfermented juice of the toddy-palms, which abound in the drier areas. The male trees are the first to be tapped, in February and March. In May the female trees begin to fruit and their sap is then drawn off. There is an oil refinery at Yenangyat, worked by the Burma Oil Company, and another at Kywede village in the Pakokku township, owned by a Burman. Arts and manufactures.

All the trade of the Yaw country and a good deal of that of the Chindwin valley passes through Pakokku. The principal exports are timber, hides, petroleum, cutch, *yawpet* (the leaves or covering of the maize cob), and jaggery. Timber, petroleum, and hides are sent to Rangoon for exportation; cutch and *yawpet* to Lower Burma for consumption. The principal imports are cleaned rice, *ngapi*, and salted fish from Lower Burma, and foreign salt from Rangoon. The centre Commerce and trade.

of trade is Pakokku town, whence goods are shipped by the Irrawaddy Flotilla steamers or distributed overland through the District. A certain amount of bartering goes on between the Chins and the people of the plains, beeswax, honey, lac, and a kind of cane called *wanwe* being exchanged for salt, fowls, and Burmese cotton blankets.

Means of communication.

There are no railway lines. The chief roads maintained from Provincial funds are: the Pakokku-Kan road, 166½ miles; the Saw-Zigat road (Saw to Kawton), 43 miles; the Haka-Kan road (from Yeshin camp to Kan), 11½ miles; the Saw-Kyetchedaung mule track, 19 miles; the Pauk-Yawdwin road, 53 miles; the Pakokku-Myaing road (via Kaing), 26 miles; the Pakokku-Yesagyo road, 26 miles; and the Mindat-Sakan Kanpetlet mule track, 32 miles. Those maintained from the District fund include the Kanhla-Myitche road, 14 miles; the Pakokku-Lingadaw road, 27 miles; the Myaing-Lingadaw road, 18 miles; the Yesagyo-Lingadaw road, 17 miles; and the Wadin-Sinzein road, 25 miles. All these are unmetalled, but bridged and drained. The Irrawaddy, the Chindwin, and the Myittha are all navigable waterways. The Myittha is navigable by country boats during the greater part of the year, from the Chindwin river up to Minywa a little south of Gangaw, and occasionally boats go still farther on into the Maw stream up to a village called Kinban. The distance from Kalewa (at the mouth of the Myittha in the Upper Chindwin District) to Minywa is about 180 miles by river, and from Minywa to Kinban about 15 miles. The steamers of the Irrawaddy Flotilla Company ply regularly on the Irrawaddy and Chindwin. The express boats call at Pakokku twice a week, and a steam ferry runs daily between Pakokku and Myingyan. The Chindwin steamers leave Pakokku for Kindat weekly, and for Monywa twice a week.

Famine.

Though the eastern half of the District is a typical stretch of dry zone country, there is no record of the occurrence of any serious famine. Scarcity has sometimes been experienced; indeed, when regard is had to the nature of the rainfall in the eastern tracts an occasional failure of crops owing to drought is inevitable, but any distress in the past it has been possible to meet by a remission of taxation.

District subdivisions and staff.

For administrative purposes the District is divided into three subdivisions: Pakokku, comprising the PAKOKKU, YESAGYO, and MYAING townships; Pauk, comprising the PAUK, SAW, and SEIKPYU townships; and Gangaw, comprising the GANGAW and TILIN townships. The head-quarters staff is of the usual

type. The Public Works division, with head-quarters at Pakokku, includes the Pakokku Chin Hills, there being two subdivisions within the District, Pakokku and Pauk. The Yaw Forest division, with head-quarters at Pakokku, also includes the Pakokku Chin Hills. An assistant commandant of military police is stationed at Pakokku.

The treasury officer, Pakokku, is also additional judge of the Pakokku township court, but there are no specially appointed judicial officers; the District officers—Deputy-Commissioner and subdivisional and township officers—perform judicial in addition to executive duties. The crime of the District presents no special features. Civil and criminal justice.

The revenue of Pakokku under Burmese rule consisted almost entirely of *thathameda*. Royal lands, it is true, sometimes paid rent, but little of it ever reached the royal coffers at Mandalay. The revenue now levied on state land is assessed at a share of the value of the produce of different kinds of crops—rice at one-fifth and *jowār* at one-eighth. On *kyun* (or island) crops acre rates are levied, varying from Rs. 2 an acre on peas, *jowār*, maize, rice, and sesamum, to Rs. 7 an acre on sweet potatoes and onions. Variations in the land revenue receipts are brought about by the appearance and disappearance of islands in the Irrawaddy. There are a considerable number of *wuttugan* lands, i.e. lands dedicated in Burmese times to pagodas, the revenue of which is devoted to the up-keep of the shrines; and of *thugyisa* lands, or lands held by the village headmen rent-free during their terms of office. Regular settlement operations are now in progress. Revenue administration.

The growth of the revenue since 1890–1 can be gathered from the following table, which gives figures in thousands of rupees:—

	1890–1.	1900–1.	1903–4.
Land revenue . .	77	1,62	1,29
Total revenue . .	7,38	10,69	12,30

The main source of revenue is *thathameda*, the demand of which amounted to Rs. 7,24,000 in 1903–4, a figure a good deal higher than for any other District in Upper Burma.

The only municipality is that of PAKOKKU, constituted in 1887. Yesagyo used to be a municipality, but the board was dissolved in 1892–3. The District fund is administered by the Deputy-Commissioner. In 1903–4 its income, derived from various local receipts, amounted to Rs. 15,000, the main item of expenditure being public works (Rs. 10,000). Local and municipal government.

Police and jails.

Under the District Superintendent are two inspectors and an Assistant Superintendent in charge of the police in the three subdivisions. There are 11 police stations and 17 outposts; and the sanctioned strength of officers and men is 407, including 4 inspectors, 1 chief head constable, 12 head constables, 31 sergeants, and 357 constables of all grades. The military police belong to the Magwe battalion. Their strength is 150 rank and file, distributed in the three subdivisional head-quarters. They are officered by an assistant commandant, one *sūbahdār*, and three *jemadārs* at head-quarters, and one *jemadār* at Pauk and Gangaw respectively.

The District jail at Pakokku has accommodation for 52 convicts and 20 under-trial prisoners. The only remunerative industry carried on is wheat-grinding for the military police. No carpentry or any other kind of industry is undertaken, and when there is no wheat-grinding the prisoners have comparatively little work to do. Some are, however, employed in gardening. English and native vegetables are grown for the consumption of the prisoners, and some are sold in the local market to the public.

Education.

The proportion of literate persons in 1901 was 23·3 per cent. (46·8 males and 2·3 females). The number of pupils has risen from 1,949 in 1891 to 13,426 in 1901. In 1904 the District contained 8 secondary, 126 primary, and 737 elementary (private) schools, with an attendance of 11,818 (including 751 girls). The educational expenditure in 1903-4 amounted to Rs. 24,100, Provincial funds contributing Rs. 21,000 and municipal funds Rs. 600, the balance of Rs. 2,500 being met from fees and subscriptions.

Hospitals.

There are four civil hospitals, with accommodation for 73 in-patients; and 14,917 cases, including 687 in-patients, were treated at these institutions in 1903, while 425 operations were performed. The combined income of the hospitals amounted in that year to Rs. 12,500, towards which Provincial funds contributed Rs. 6,300, municipal funds Rs. 3,700, and the District fund Rs. 1,500. Besides these a military police hospital at Pakokku contains 64 beds, and costs about Rs. 500 per annum.

Vaccination.

Vaccination is compulsory only in the Pakokku municipality. In 1903-4 the number of persons successfully vaccinated was 7,602, representing 21 per 1,000 of population.

Pakokku Subdivision.—Eastern subdivision of Pakokku District, Upper Burma, comprising the PAKOKKU, YESAGYO, and MYAING townships.

Pakokku Township.—Township of Pakokku District,

Upper Burma, lying between 20° 55′ and 21° 28′ N. and 94° 43′ and 95° 11′ E., along the bank of the Irrawaddy, with an area of 386 square miles. The population was 71,106 in 1891, and 68,344 in 1901, distributed in one town, PAKOKKU (population, 19,456), the head-quarters, and 223 villages. Along the river bank the country is flat; inland it is undulating. The rainfall is very meagre, but the population is fairly dense. The area cultivated in 1903–4 was 124 square miles, and the land revenue and *thathameda* amounted to Rs. 1,85,000.

Yesagyo.—Eastern township of Pakokku District, Upper Burma, lying between 21° 24′ and 21° 52′ N. and 95° 4′ and 95° 24′ E., along the banks of the Irrawaddy and Chindwin, with an area of 564 square miles. The township is flat, except in the west, and large portions of it are liable to inundation. The population was 53,795 in 1891, increasing to 87,797 in 1901, distributed in 238 villages. The head-quarters are at Yesagyo (population, 3,522), for some time a municipality, and still a thriving trade centre with a large bazar, on the Chindwin, about 26 miles from Pakokku town. The rainfall is very scanty, but the density of population is comparatively high. The area cultivated in 1903–4 was 134 square miles, and the land revenue and the *thathameda* amounted to Rs. 2,23,000.

Myaing.—Eastern township of Pakokku District, Upper Burma, lying between 21° 24′ and 21° 51′ N. and 94° 33′ and 95° 9′ E., with an area of 825 square miles. The township is undulating in contour, rising gradually towards the Tangyi range of hills that bounds it on the west, and has a very meagre rainfall. The population was 47,111 in 1891, and 71,976 in 1901, distributed in 295 villages. Myaing (population, 610), a village 25 miles north-west of Pakokku, is the head-quarters. The area cultivated in 1903–4 was 215 square miles, and the land revenue and *thathameda* amounted to Rs. 1,53,000.

Pauk Subdivision.—South-western subdivision of Pakokku District, Upper Burma, comprising the PAUK, SAW, and SEIKPYU townships.

Pauk Township.—Central township of Pakokku District, Upper Burma, lying between 21° 10′ and 21° 49′ N. and 94° 18′ and 94° 44′ E., with an area of 1,490 square miles. It is a rugged tract, bounded on either side by hill ranges, and watered by the Kyaw river, a considerable affluent of the Yaw, which flows through its southern areas. Along these two streams a considerable amount of rice is grown. The population was 36,515 in 1891, and 41,021 in 1901, distributed in 190 villages. Pauk (population, 1,826), a village near the

junction of the Kyaw and Yaw streams, about 40 miles west of Pakokku, is the head-quarters. The area cultivated in 1903–4 was 42 square miles, and the land revenue and *thathameda* amounted to Rs. 94,000.

Saw.—South-western township of Pakokku District, Upper Burma, lying between 20° 48′ and 21° 37′ N. and 94° 0′ and 94° 20′ E., along the eastern edge of the Chin Hills, with an area of 1,200 square miles. The greater part of the township lies in the basin of the Yaw, but the southern portion is watered by the Maw, which rises near Mount Victoria. The population was 22,339 in 1891, and 19,868 in 1901, distributed in 117 villages. The majority of the inhabitants are Burmans, but Chins and Taungthas are also numerous. Saw (population, 742), at the foot of the hills, is the head-quarters. The area cultivated in 1903–4 was about 23 square miles, and the land revenue and *thathameda* amounted to Rs. 47,000.

Seikpyu.—Southern township of Pakokku District, Upper Burma, lying between 20° 50′ and 21° 21′ N. and 94° 20′ and 94° 48′ E., with an area of 559 square miles. The level of the country rises on all sides towards the centre, from which spring numerous streams draining into the Yaw river, which sweeps round the township, first in a north-easterly and then in a southerly course. The inhabitants are confined to the valleys of the Yaw and its tributary, the Sada-on, which drains the south. The hilly centre is uninhabited. The population was 47,502 in 1891, and 31,100 in 1901, distributed in 152 villages, Seikpyu (population, 1,195) on the Irrawaddy being the head-quarters. The area cultivated in 1903–4 was 107 square miles, and the land revenue and *thathameda* amounted to Rs. 72,000.

Gangaw Subdivision.—North-western subdivision of Pakokku District, Upper Burma, comprising the GANGAW and TILIN townships.

Gangaw Township.—Northernmost township of Pakokku District, Upper Burma, lying between 21° 49′ and 22° 50′ N. and 93° 59′ and 94° 27′ E., with an area of 698 square miles. It comprises, with the Tilin township, the whole of that part of the District which drains into the Upper Chindwin and is watered by the Myittha. Gangaw is a narrow valley shut in by the Chin Hills on the west and by the Pondaung range on the east, and is to a great extent cut off from the rest of the District. Its population was 22,648 in 1891, and 24,200 in 1901 (including 1,989 Chins), distributed in 118 villages. The head-quarters are at Gangaw (population,

1,300), on the Myittha river. The area cultivated in 1903-4 was 22 square miles, and the land revenue and *thathameda* amounted to Rs. 52,000.

Tilin.—Western township of Pakokku District, Upper Burma, lying between 21° 27′ and 21° 57′ N. and 93° 59′ and 94° 22′ E., with an area of 488 square miles. It lies between the Chin Hills and the Pondaung range, which cuts it off from the rest of the District. The chief stream is the Maw, which joins the Myittha river after a short northerly course. The sole cultivation is rice, and this only near the streams, so that in years of drought the township is liable to partial famine. The population was 10,943 in 1891, and 12,183 in 1901, distributed in 120 villages, Tilin (population, 670), on the Maw river, being the head-quarters. About 2,000 Taungthas reside in the township, who are largely employed in rearing silkworms. The area cultivated in 1903-4 was 6 square miles, and the land revenue and *thathameda* amounted to Rs. 27,000.

Pakokku Town.—Head-quarters of the District of the same name in Upper Burma, situated in 21° 20′ N. and 95° 5′ E., on the right bank of the Irrawaddy, a few miles below the point where the Chindwin runs into that river. It is a long straggling town of no great width, never extending more than three-quarters of a mile away from the stream, and thickly dotted with tamarind-trees. It is built on an alluvial bed, and there is a tradition that the river channel once ran where the town now stands. The eastern boundary of the urban area is a wide sandy nullah crossed by a bridge leading to a fine stretch of country, considerably higher than the native town, on which stands the civil station, with the court-house, jail, and officers' residences. Two or three miles to the west of the town, along the river, the country lies low; and when the river is in flood the whole of this tract is inundated, the subsiding floods leaving extensive *jhīls*.

The history of the town dates from 1885, when the large sandbank which had till then cut it off from the river disappeared. In 1885-6 it was garrisoned by a company of native infantry in a stockade to the north, supported by two civil police outposts; and this force was greatly augmented during the disturbances of 1887, but was withdrawn when the country became quiet. The population of Pakokku in 1889 was estimated at from 5,000 to 8,000, but had increased to 19,972 in 1891, dropping slightly to 19,456 in 1901. It is thus, after Mandalay, the largest town in Upper Burma.

The majority of the population is Burman, but there are nearly 800 natives of India.

Pakokku is the great boat-building centre of Upper Burma. Most of the large cargo boats carrying rice to Lower Burma are built here. Till recently old-fashioned Burman designs have been adhered to; a new style of boat, called a *tonkin*, is now, however, being constructed by the local builders, resembling the ordinary cargo boat, but decked over and level keeled. It is used in the tidal creeks of Lower Burma. The principal local industries are silk-weaving, wood-carving, sesamum oil pressing, and silver-work; and jaggery sugar is made from the toddy-palms which abound in the District. Pakokku is the chief market for the Yaw and Chindwin trade, the imports consisting mainly of jaggery, hides, cutch, teak, and bamboos. The town is a regular port of call for the Irrawaddy Flotilla Company's steamers. The mail-boats leave for up-river stations as far as Mandalay and down-river stations as far as Rangoon twice a week, and for the Chindwin stations once a week. An additional service of two steamers a week plies to Monywa, and a daily launch goes to and from Myingyan.

Pakokku was constituted a municipality in 1887. The municipal receipts and expenditure during the ten years ending 1901 averaged between Rs. 38,000 and Rs. 39,000. In 1903–4 the income was Rs. 46,000, the principal sources of receipt being bazar rents (Rs. 20,000) and house tax (Rs. 11,100). The expenditure amounted to Rs. 48,000, the chief items being conservancy (Rs. 11,000) and roads (Rs. 7,000). The water-supply is obtained from the river and from wells. The municipality maintains 11 miles of metalled, and 8 miles of unmetalled, roads. There is no municipal school, but the municipality gives Rs. 600 a year to the Wesleyan Anglo-vernacular school in the town, and also supports a hospital.

Boundaries, configuration, and hill and river systems.

Minbu District. — A dry zone District in the Minbu Division of Upper Burma, lying along the western bank of the Irrawaddy between 19° 50′ and 21° 2′ N. and 94° 2′ and 95° 2′ E., with an area of 3,299 square miles. It is bounded on the north by Pakokku District; on the south by Thayetmyo; on the east by the Irrawaddy, which separates it from Magwe District; and on the west by the Arakan Yoma, which divides it from Kyaukpyu. Roughly speaking, the land over the greater part of the District rises from east to west away from the Irrawaddy valley. In the extreme east are sandy

plains on the banks of the river, which gradually become broken undulations, and then give place first to rocky jungle-covered hills and finally to the steep and even majestic range that severs the District from the Arakan coast-lands and the sea. This configuration is modified by various small rivers which flow into the Irrawaddy and drain the uplands. Cultivation is chiefly confined to the strips of land extending east and west which these rivers irrigate, and to the alluvial tract running north and south along the course of the Irrawaddy. Between these irrigated tracts, and covering almost the whole of the south of the District, is dry gravelly country clothed with scrub jungle, ending in the extreme south in a spur of hills which breaks off at right angles from the western range.

The ARAKAN YOMA, which forms the barrier between Minbu and Kyaukpyu, runs south-east and north-west, and rises in places to a height of over 5,000 feet. Parallel to the main range on the east, and between it and the river, are the Nwamadaung hills, a chain running the entire length of the District, but far lower than the Yoma, averaging in height only about 600 feet. Of the rivers of Minbu the Irrawaddy is the most important. It skirts the District for about 80 miles, and its width opposite Minbu town is nearly 3 miles, though the expanse of waters is broken even in the rains by one or other of the numerous shifting sandbanks which here make navigation difficult in all seasons. In the course of the year the river level rises 40 feet, the most constant rise being from June till the beginning of September, and in flood-time the current flows at a rate of 5 or 6 miles an hour. The other rivers of the District—the Salin, the Mon, and the Man—are all tributaries of the Irrawaddy, which find their source in the hills in the west. The Salin rises in the Pakokku Chin Hills, not far south of Mount Victoria, and enters the District from the north, flowing in a southerly direction from Pakokku District to about 35 miles from the boundary, when it bends abruptly and takes a north-easterly course to meet the Irrawaddy near Sinbyugyun. For the greater part of its course in the District it is a broad, slow, shallow stream, with low indefinite banks and a gravelly bed. Above Salin in the dry season it holds but little water, and below that town it is quite dry. The alluvial plain skirting it is well watered by an extensive system of canals. The Mon rises in the mountains west and north of Mount Victoria, and enters the District at its north-west corner. It runs first in a south-easterly direction along a narrow valley between

the Arakan Yoma and the Nwamadaung. Below Sidoktaya it pierces the latter range and emerges on the plain, flowing eastwards across it for about 34 miles in a wide channel before entering the Irrawaddy. Its waters are perennial, and the rich valley it is capable of irrigating will in the near future be a very valuable rice tract. The Man rises in the Arakan Yoma in the south-west corner of the District, and flows in a north-easterly direction through a break in the Nwamadaung hills into the Irrawaddy, which it enters at Minbu. Like the Salin its waters are diverted into irrigation canals, but the stream is of little size in the dry season.

Two lakes are worthy of mention; one at Paunglin, and one known as the Wetthigan Lake. The former is situated near the Irrawaddy, 10 miles south-east of Salin town, and is really a lagoon fed by the overflow of the Irrawaddy. In the hot season the bed is practically dry, and is sown with rice. When the Irrawaddy rises the water rushes in through two creeks which are dammed up as soon as the river begins to subside, and until the dry season comes round again the sheet of water thus formed is worked as a fishery by the neighbouring villages. It provides good duck-shooting in the cold season. The Wetthigan Lake, which is not fished, as it was held sacred under Burmese rule, is formed by rain-water and the outflow from the Salin canals. It has an area of 366 acres, and lies half a mile to the west of Salin town.

Geology. North of Minbu town the country is overlaid with the alluvium of the Mon and Irrawaddy rivers. South and west of the town the ground is undulating, and is occupied mainly by soft sandstones of Upper Tertiary (pliocene) age, containing fossil wood and fragments of mammalian bones. A small area of miocene rocks is brought up near Minbu by an anticlinal fold consisting of blue and olive clays with soft sandstones, belonging to the upper or Yenangyaung stage of the Pegu series. Traces of oil are found along the crest of this anticlinal, and on it, near Minbu, a number of mud volcanoes are situated[1]. The miocene beds are also exposed in the western part of the District, extending along the foot of the Arakan Yoma, followed in the hills by Nummulitic shales and limestones (Upper Eocene). West of these again is a band of purple schists, and green and purple shales (Chin shales), traversed by numerous dikes of dolerite and dark-green serpentine. Steatite occurs in association with the serpentine, and is quarried near Pa-aing and Sinlan, west of the Nwamadaung.

[1] F. Noetling, *Mem. Geol. Survey of India*, vol. xxvii, pt. 2, p. 35.

The vegetation follows the three natural divisions adverted to in an earlier paragraph, and may be divided into the flora of the alluvial and irrigated tracts, that of the dry uplands, and that of the submontane and Yoma zones. In the alluvial belt we find a stretch of savannah, the chief constituent grasses being *Imperata arundinacea* and *I. exaltata*; trees are sparse here, the more common ones being *Bombax malabaricum*, *Butea frondosa*, and *Parkinsonia aculeata*. Moist hollows are frequent; as a rule they are surrounded by a copse of shrubs and trees, generally *Xanthophyllum glaucum*, and filled up with *Polygonum stagninum* or *Combretum trifoliatum*. Round villages toddy-palms (palmyras) and coco-nut palms are common, and banyans, *pīpals*, mangoes, or jack-fruit trees are usually to be found. The banks of the Irrawaddy are covered with a great variety of herbaceous plants. The irrigated areas present much the same features as the alluvial, though the coarse grasses of the latter are to a considerable extent here replaced by *Desmodium triflorum*, *Tephrosia purpurea*, and similar plants, while *Calotropis* is quite common. The dry upland vegetation is peculiarly characteristic of the District. It forms a rolling wilderness of prickly scrub, the principal shrubs in which are the so-called wild plum (*Zizyphus Jujuba*), *Randia dumetorum*, special species of *Capparis*, and the cactus-like *Euphorbia antiquorum*. True cactus is also found near villages. Trees are scarce, the only common kinds being *Albizzia Lebbek* and *Acacia leucophlaea*, the latter providing welcome oases of bright verdure in the burnt-up scenery of the hot season. In the mountain tracts, the Nwamadaung hills are clad with deciduous forest, and present a very bare appearance in the hot season owing to the almost total absence of herbaceous undergrowth. The lower slopes of the Yoma proper are clothed with deciduous forests of much the same kind, while its upper crests are covered with evergreen forest. Botany.

From the sportsman's point of view the District is as well provided with wild animals as any in Burma. Tigers are common in places, elephants, bison, the *tsine* or *hsaing* (*Bos sondaicus*), and the Tibetan bear are plentiful, and leopards are dangerously numerous. The Malayan bear and the rhinoceros are also found. Of the deer tribe, the *sāmbar* (*Cervus unicolor*), the *thamin* (*Cervus eldi*), and the hog deer abound in places, while the barking-deer is a pest to cultivators. Wild hog are not uncommon, and three kinds of wild dogs are to be found: namely, the ordinary grey wild dog, the jackal, and Fauna.

a wolf. Porcupines and otters occur, but very rarely. Among game birds the silver pheasant, Hume's pheasant, the bamboo partridge, and the Chinese francolin deserve special mention; while peafowl, jungle-fowl, rain quail, button quail, snipe, teal, and most varieties of duck all find a habitat in the District.

Climate and temperature.

The climate of Minbu varies. In the hilly portion west of the Nwamadaung it is, except during the first four months of the year, deadly for Europeans, and even for Burmans, save those who actually live in the hills, whereas in the east the conditions are much the same as in other Districts in the dry zone of Upper Burma. The cold season lasts from November till February, the hot season from March till May, and the rains from June till November. The cold season is delightful, but April and May are oppressively sultry, and Minbu has the reputation of being one of the hottest Districts in Burma during those two months. The following maxima and minima were recorded in 1901: December, 89° and 60°; May, 107° and 87°; July, 95° and 77°. In April and May the thermometer rises not infrequently to 109°. The nights, however, are nearly always cool, even in the most sultry weather.

Rainfall and floods.

The annual rainfall for the five years ending 1900-1 averaged 26.6 inches. It should be noted, however, that the rainfall in the hills in the west is often nearly double that in the eastern portion of the District. In the east, which is a typical dry zone area, steady downpours lasting for days are unknown. When it comes, the rain descends in showers which seldom last more than four or five hours. There are floods of some extent every year, and the rise of the river corresponds roughly with the rainfall. It is estimated that an ordinary high flood occurs every three years, and an unusually high flood one year in five.

History and archaeology.

The early history of Minbu is pure legend, being concerned largely with the doings of Alaungsithu, king of Pagan, who is credited with having improved the early irrigation systems of the District in the twelfth century. Under Burmese rule the charge of what is now Minbu District was entrusted to three *wuns* living at Salin, Sagu, and Ngape, while Minbu itself was administered by an official called a *penin* ('coxswain of a royal boat'). Each *wun* had under him a *sitke* (technically military officer), a *nahkan*, and a *sayegyi* or head clerk, while all important villages were under a *myothugyi*. Of the towns, Salin was then the largest, containing in 1826 some 10,000 inhabitants. Minbu was first occupied by the British in March, 1886, and became the head-quarters of a military command in July.

In the succeeding year the troops were gradually withdrawn, and Myingyan became the military head-quarters. The chief feature in the annexation of the District was the stubborn resistance offered by two dacoit leaders, Nga Swe and Oktama, the former operating chiefly south of the Man river, the latter north of the Man as far as Salin. Nga Swe, who, as a border *thugyi*, had frequently harried British territory, collected a large following and captured Ngape, a police outpost, in May, 1886. After an unsuccessful attempt to capture him, in which Mr. Phayre, the Deputy-Commissioner, lost his life, he was driven out; but he then laid siege to the village of Thabyebin, which was only relieved after the British garrison had been reduced to sore straits. The occupation of various outposts in his country and vigorous pursuit by mounted infantry drove this notorious outlaw eventually to Thayetmyo District, where he was killed. Oktama was a *pongyi* who collected a band of insurgents, and attacked and burnt Sagu in April, 1886. He was driven out, but reappeared in June of the same year with 3,000 men and laid siege to Salin. The gang dispersed after this, but later gave much trouble round Pyilongyaw; and it was not till June, 1889, that Oktama was betrayed into British hands and hanged after due trial.

The only archaeological remains of interest are a few pagodas. Salin is a town of some antiquity, having been founded, according to tradition, about A.D. 1200, by Narapadisithu, king of Pagan; and the remains of the old city wall present a fine specimen of ancient Burmese fortification. Of pagodas, the most important is the Shwezettaw ('the golden foot') in the Sagu township, not far from Minbu town. It is said to derive its name from the fact that when Buddha came to Burma he went to the site of the Shwezettaw pagoda and there left his footprints, one by the bank of the Mon stream, and one on the top of the hill which rises sheer on the opposite bank. Thither every year at the time of the pagoda festival, which lasts from the middle of February to the middle of March, come streams of gaily-dressed pilgrims from every part of Burma. The pagoda at Kyaungdawya in the Legaing township is reverenced as marking the place where Buddha rested during the same visit. Other important pagodas are the Koktheinnayon near Salin, and the Myatsepo and Shwebannyin, both in the Legaing township. Towards the up-keep of three pagodas and two *natsins* ('spirit shrines') the Archaeological department makes an annual grant.

The people.

The population was 215,959 in 1891 and 233,377 in 1901.

Its distribution in the latter year is shown in the following table :—

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Sagu . . .	542	1	197	57,699	106	+ 32	18,444
Legaing . .	533	...	146	36,397	68	+ 1	8,874
Ngape . .	362	...	144	16,033	44	+ 22	3,867
Salin . . .	741	1	464	100,737	136	+ 2	27,850
Sidoktaya . .	1,121	...	208	22,511	20	— 8	4,686
District total	3,299	2	1,159	233,377	71	+ 8	63,721

The only towns are the municipalities of MINBU and SALIN. There has been a distinct increase of population in all the townships except Legaing, which will probably develop rapidly when the new canals are completed, and the sparsely populated and hilly township of Sidoktaya in the west. The growth in the Salin township as a whole is accompanied by a diminution in Salin town, the precise cause of which is doubtful. There has been considerable immigration of recent years from Magwe and Myingyan Districts. Along the Irrawaddy valley villages are numerous and the density of population is high, but the forest-clad areas on the slopes of the Yoma are very thinly populated. There are no Christian missions and only 101 native Christians. The Chins are nearly all *nat*-worshippers; otherwise Buddhism reigns supreme. Burmese is the vernacular of 93 per cent. of the people.

Race and occupations.

The majority of the population is Burman everywhere, except in the western townships, where it is composed largely of Chins of the Chinbok tribe; and tradition has it that Salin was originally a Chin colony. The Chins in all numbered 15,600 in 1901, forming one-fifth of the population of the Ngape township, and half that of Sidoktaya. The people of Sagu and parts of the Salin township are said to be of Shan descent, and the weaving village of Nwetame, a suburb of Sinbyugyun, is reckoned a Shan colony; but the Census returned only 1,000 Shans. In connexion with the population, mention should be made of the large landed proprietors of Salin known as *thugaungs*, rich families who have gradually come to form a separate class, intermarrying among themselves, and living in almost patriarchal fashion. Their houses are as a rule surrounded by spacious compounds, in which are

lodged their tenants and retainers, and at least one compound contains a school for the children of the *thugaung's* followers. The *thugaungs*, it may be noted, freely recognize their Chin origin. Natives of India numbered 1,850 in 1901, the total being equally divided into Hindus and Musalmāns. About one-third of them live in the two municipalities. About 66 per cent. of the entire population are directly dependent on agriculture for a livelihood. Of this total more than a third are dependent on *taungya* cultivation alone.

General agricultural conditions.

The District is an essentially agricultural one; but the light rainfall, the vicissitudes of the seasons, and the easy-going disposition of the people make their agricultural income sadly precarious. Especially is this the case with those who, living at a distance from rivers or canals, cultivate upland crops, such as sesamum and *jowār*, which are particularly dependent on a proper distribution of moisture. Of the capabilities of the soil on the whole the cultivator has no reason to complain, for, apart from irrigated and alluvial land, he can grow *mogaung* rice in the hollows of the undulating uplands (*indaing*), and the crop only requires proper rain to be profitable. But agricultural practice is slovenly: no care is taken in the selection of seed at harvest; a large amount of land is tilled badly instead of a small amount well, and no trouble is taken to manure the fields.

Rice is usually transplanted, but it is also occasionally sown broadcast on lands flooded late by the Irrawaddy. Ploughing is done with the *tun* or harrow; sometimes in river-flooded land even this process is dispensed with, and the soil is merely stirred up by driving cattle to and fro over it. On alluvial land the *te* or plough is used, a rude but effective instrument; while clods are crushed on rice and alluvial land by an implement called the *kyanbaung*.

Chief agricultural statistics and principal crops.

The area under cultivation varies very considerably from year to year, owing to the irregularity of the rainfall. The following table exhibits the main agricultural statistics for 1903–4, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Sagu	542	105	24	1,561
Legaing	533	70	14	
Ngape	362	9	5	
Salin	741	186	46	
Sidoktaya	1,121	15	5	
Total	3,299	385	94	1,561

The area under rice is comparatively large for a District in the dry zone. It is the staple crop, occupying more than 120 square miles in 1903–4, and is both lowland (*le*) and hill (*taungya*). Next in importance is sesamum, covering 116 square miles. About 49 square miles are under pulses of various kinds; but maize and *jowār* are grown to a very much smaller extent than in the other dry zone Districts, occupying together only about 70 square miles. Gram, hardly grown at all in the adjoining District of Magwe, here covers 18 square miles, and is increasing in popularity. The tobacco crop in 1903–4 (3,000 acres) was small compared with that of the previous year. About 700 acres are under cotton. The area devoted to garden cultivation (2,000 acres) is small, but is larger than in many other dry zone Districts. Betel-vines and plantains are cultivated in the Legaing township, and mangoes, coco-nuts, and the like in the Salin township. The betel vineyards at Pwinbyu on the Mon river are deserving of special mention.

Improvements in agricultural practice. Cultivation is on the increase, especially in the uplands, and when the Mon canal system is completed, there should be a large increase in irrigated land also. The introduction of new varieties of seed is a difficult task. An improved kind of plantain has, however, been brought from Mandalay, and a dry variety of pea from the United Provinces, while attempts are being made to get tobacco-growers to experiment with Havana seed. After bad years cultivators are much helped by the system of agricultural loans. The average amount allowed for the District is Rs. 13,800 per annum, every rupee of which, in hard times, is applied for, and very little has ever to be written off subsequently as irrecoverable.

Cattle, &c. Cattle-breeding is carried on, but scientific breeding requires a care and attention which the people are but little disposed to give to it. Cows are extensively kept, but almost solely for breeding purposes; a cow that produces a good heifer at once rises in value. Trotting bullocks are also in considerable demand. Ponies, too, are bred, but colts and foals are ridden far too young, and though good colts are doubtless kept for breeding purposes, no care at all is taken over the selection of mares. Something is at present being done to encourage sound breeding by the institution of an annual agricultural show at Sagu. Buffaloes are found chiefly in the villages along the Irrawaddy. They are not used in the upland tracts, and only occasionally on irrigated land. The average price for a pair of buffaloes is between Rs. 120 and Rs. 150.

Ample provision for grazing-grounds was made at the time

when the District was settled, but the system has not been found very successful in practice. Allotments of land for grazing purposes have frequently to be revoked, because the land is required for cultivation, and very often what is allotted is too far from the village to be of much use. In the irrigated tracts no grazing-grounds have been reserved at all, and cultivators here send their cattle to upland villages when turning them out to grass.

Irrigation. The total area of irrigated land in 1903-4 was 94 square miles, dependent almost entirely on the Man and Salin Government irrigation systems. Of this total more than 90 square miles were under rice. The Man system begins at Sedaw, a village situated on the Man river where it leaves the hills, about 20 miles from its mouth, and serves more than 40 square miles on its northern bank. The Salin system begins at Theywa, a village on the Salin river 29 miles from the Irrawaddy, and irrigates more than 50 square miles on both sides of the Salin. It comprises eighteen canals, the most important of which is the Myaungmadaw, which, leaving the Salin river at Linzin 12 miles above Salin town, passes through the town, and ultimately reaches the Paunglin lake. A very important scheme for utilizing the Mon river for irrigation purposes has recently been sanctioned. A weir is under construction in the Mon at Mezali, 34 miles from its mouth. By taking out a canal on each side, the work has been designed to irrigate both the northern and southern slopes of the valley down to the Irrawaddy, and thus to serve a total area of 120 square miles of very rich rice-growing soil. The cost of this scheme is estimated at 33½ lakhs. A certain amount of land is irrigated by small private canals and tanks. In 1903-4 about 17 square miles were watered by the former method. The Paunglin lake supplies about 1,600 acres of *mayin* rice.

Fisheries. The revenue obtained from leased fisheries amounted in 1903-4 to Rs. 24,800. Paunglin lake, the most important of these areas, is split up into five different sections; four are leased as fisheries, and in the other individual licences for catching fish are issued. Another fishery worthy of mention is the Kekkaya tank, just outside Legaing village.

Forests. The total area of 'reserved' forest is 378 square miles, comprising 12 different tracts of hilly country, the most important of which are the Mon West Reserve (covering 93 square miles) and the Nwamadaung (covering 36 square miles). The former extends over elevated and precipitous uplands in the Arakan Yoma; the Nwamadaung lies farther to the east, also on high

ground. An extension of the 'reserved' areas will soon be imperatively needed, for the forest tribes (practically all Chins) who live by *taungya*-cutting have carried that practice to such a stage as to threaten seriously the existence of valuable and climatically essential timber-grounds. The area of unclassed forest is about 1,183 square miles, much of which is merely scrub. A tract with a more valuable growth, containing teak and cutch, is drained by the Sin stream, and it has recently been proposed to reserve 30 square miles of this. Good timber occurs on the Podein branch of the Man and its tributaries, while in the higher parts of the unclassed forest in the south-west of the District *Ficus elastica* yields india-rubber in paying quantities.

The chief trees of economic value in the 'reserved' forests are: *sha* (*Acacia Catechu*), yielding some of the best cutch obtainable in Burma; *kyun* or teak (*Tectona grandis*), found in all the Reserves, though not in great quantities; *padauk* (*Pterocarpus indicus*), the wood of which is in great request as material for cart-wheels; and bamboo, usually the *myinwa* (*Dendrocalamus strictus*). The wood of a large number of trees is used for house-building, most important among which are *ingyin* (*Pentacme siamensis*), *thitya* (*Shorea obtusa*), *in* (*Dipterocarpus tuberculatus*), and *kusan* (*Hymenodictyon thyrsiflorum*). Charcoal is burnt in certain localities from the *dahat* (*Tectona Hamiltoniana*) and *than* (*Terminalia Oliveri*), and wood varnish is extracted from the *thitsī* tree (*Melanorrhoea usitata*) and used for lacquer. *Thitchabo*, the bark of *Cinnamomum zeylanicum*, is used medicinally for bruises and the like, and also chewed with betel. The fibre of the *shaw*-tree (*Sterculia*) and *gangaw* (*Mesua ferrea*) are obtained high up in the evergreen forest. Plantations of *Acacia Catechu* have been made with a view to increasing the yield of cutch, and more than 800 acres have been successfully planted. It is interesting to note that the pine (*Pinus Khasya*) is found on exposed ridges in the Mon West and Palaung Reserves, but that it is not worked either for its timber or its rich supplies of resin. Fire-protection is at present attempted in the Mon West, the Tichaungywa, and the Pasu Reserves, and the protected area is being extended. The gross forest receipts in 1903-4 amounted to about Rs. 43,000.

Minerals. The District contains no mines of importance. Two steatite quarries are situated, one of inferior quality near Ngape, the other near Pa-aing; the amount extracted in 1903 was 15 tons, valued at about Rs. 6,000. The steatite is dug out in blocks,

brought to Pa-aing on pack-bullocks, and taken from there in carts to Sinbyugyun, where the blocks are sawn into slabs, which, in their turn, are converted into pencils used for writing on the black paper memorandum books known as *parabaiks*. The borings are from 90 to 100 feet deep. Laterite, clay, gravel, and sandstone are all worked to some extent. A thirty years' lease for the working of oil-wells in the Sagu and Minbu circles was granted to the Burma Oil Company in 1896, but the undertaking had eventually to be abandoned. There are a few salt-wells in Sidoktaya and Ngape, but the out-turn is insignificant. Talc, mica, and coal are all found in the District, but are not at present worked.

Arts and manufactures. Minbu being pre-eminently an agricultural District, it is not surprising to find that arts and manufactures are few. One small oil refinery employing about half a dozen men at Taukshabin village, and a few aerated water factories employing about three men each, are the only approach to special industries the District can boast of. A little weaving is carried on in the town and villages for domestic consumption; there are a certain number of mat-weavers and potters, and a little cutch is boiled at Sidoktaya. At Thayetkyin, a small village near Salin, the people manufacture the rough black paper of which *parabaiks* are made; but even this industry is being driven out by the introduction of European paper. The arts are even worse represented. Sinbyugyun, where lacquer betel-boxes, brass bowls, and a little wood-carving are turned out, is the only place worthy of mention in this regard.

Commerce and trade. The few large traders in the District are chiefly either Chinamen or natives of India. Minbu town in the south and Sinbyugyun in the north are the two main commercial centres. The chief exports are cutch, hides, sesamum seed and oil, gram, beans, and other kinds of agricultural produce; and the main imports are piece-goods, yarn, salted fish, *ngapi*, and, in years of scarcity, rice. The two principal routes for external trade are the Irrawaddy on the east and the An pass, which is reached by a track through Ngape, on the west. The latter is freely used by the pack-bullocks that ply between Kyaukpyu and the western portion of Minbu.

Means of communication. Internal traffic is mostly by road, and no railways have been constructed. A stretch of good metalled roadway, 9 miles long, connects Salin with the Irrawaddy, and a few short lengths of 2 or 3 miles each run out from Minbu town; but not a single highway has been metalled for any considerable length. The chief land communications are the chain of roads running

from south to north from Thayetmyo to the Pakokku border, passing through Minbu, Sagu, Legaing, and Salin by way of Sinbyugyun and Zibyubin; the road from Minbu to Ngape by way of Singaung; and the road from Salin to Sun. A track from Salin to Sidoktaya is in course of construction. These are maintained by the Public Works department, but about 118 miles of road are kept up from the District fund, less than 4 miles being metalled. Merchandise is conveyed chiefly in bullock-carts, but where the roads fail in the west of the District pack-bullocks are used.

The chief waterways for internal traffic are the rivers Mon and Man. The Mon is navigable in the rains by 2-ton dug-outs up to the point where it enters the District. The Man is not navigable during the dry season at all, but in the rains boats can go as high as Aingma. The main waterway is, however, the Irrawaddy. Steamers of the Irrawaddy Flotilla Company ply four times a week, carrying mails and passengers, twice up from Rangoon and twice down from Mandalay. The same company also runs a small steamer between Minbu and Thayetmyo, and a large number of cargo-boats. A steam ferry plies across the Irrawaddy between Minbu and Magwe, and there are other local ferries.

Famine.

Famine, in the worst sense of the word, is unknown in Minbu, though years of scarcity are not uncommon. Accidents to irrigation works, deficiency of rain, and cattle-disease cause distress; but agricultural loans relieve the strain, and emigration to Lower Burma acts as a safety-valve. In 1891–2 famine was declared, and relief works were started; but with rain in the latter part of the year and a flow of imported rice from Lower Burma the distress quickly subsided, and later, when a new relief work was opened, not a person volunteered for labour on it. A District in which so many kinds of 'dry' crops are grown is always to some extent armed against drought; and it is estimated that even in the event of a serious famine, the maximum number of persons who would require daily relief would not exceed 15,000.

District subdivisions and staff.

For purposes of administration the District is divided into two subdivisions: Minbu, comprising the townships of SAGU, LEGAING, and NGAPE; and Salin, comprising those of SALIN and SIDOKTAYA. Minbu is the head-quarters of the Commissioner of the Division[1]. The Public Works department is represented by two Executive Engineers, one in charge of

[1] The transfer of the head-quarters to Magwe has been sanctioned, and will probably take place shortly.

the Mon canals and another in charge of the Salin irrigation subdivision. For ordinary public works the District forms a subdivision of the Thayetmyo Public Works division. There is a Deputy-Conservator of forests at Minbu, who is also in charge of the Magwe forests. The total number of village headmen is 458.

Civil and criminal justice. The District, subdivisional, and township courts are ordinarily presided over by the respective executive officers. The head-quarters magistrate at Minbu, however, acts as additional judge of the District court, and there is an additional judge in the Salin township court. The indigenous population are on the whole law-abiding, and not as a rule litigious.

Revenue administration. Before annexation, revenue in Upper Burma was raised by a fixed lump assessment on every town (*myo*), and was collected in kind by the town-headman (*myo-wun*), who sold the produce thus collected, and forwarded to the court officials the whole or so much of the proceeds as he thought would content them. The *thathameda* tax, the chief source of revenue, was introduced by king Mindon, and at first stood at Rs. 3 per household. Subsequently it was raised until it reached an average of about Rs. 10. Along the Mon valley the tax seems to have been treated as a tax partly on households and partly on land, the average rate being Rs. 10. Every household was assessed, in the first instance, at only Rs. 5, the balance varying according to the quantity and quality of the land worked by the taxpayer. A direct land tax was also levied on certain kinds of state land: namely, irrigated and *mayin* (hot-season) rice lands, some *kyun* (island) and *kaing* (alluvial) lands, and certain lands devoted to the up-keep of pagodas and other religious property. Irrigated state land paid much the same proportion of out-turn in revenue as non-state land paid in rent to the local landlords. In Salin the amount was usually one-half or one-third, in Sagu and Legaing one-half to one-fourth. *Mayin* rice lands paid sometimes one-fifth of their out-turn, and sometimes Rs. 10 per 10 *saiks* (about 2 acres). *Kyun* lands were variously assessed; and alluvial lands, if of good quality, would pay about one-fifth; if poor, one-tenth of their produce.

After annexation the Burmese methods of assessment were at first generally maintained; but in 1890 an *ad interim* system was introduced under which Government dealt direct with the cultivators, instead of through officials like the *myo-wuns*, and the rate at which rice was to be commuted was fixed annually by the Deputy-Commissioner according to market

rates. Lump-sum assessments and acre rates were abolished, the *kan* (roughly 75 square cubits) was taken as the unit, and rates were raised all round. At the same time crop out-turns were measured, and statistics collected as to the cost of cultivation, with the result that in the following year (1891–2) the rates were generally reduced. By 1893 the cadastral survey of most of the District was completed, and in that year regular settlement operations were started. They were finished by the end of 1897, but did not include the townships of Ngape and Sidoktaya, which were summarily settled in 1901. As a result the main rates, as finally sanctioned for five years in 1899, were as follow: irrigated rice, Rs. 2 to Rs. 7 per acre; alluvial rice (*taze*), R. 1 to Rs. 4–8–0; hot-season rice, Rs. 4; unirrigated rice, Rs. 1–8–0 or Rs. 2–8–0. Alluvial crops other than rice pay from Rs. 2 to Rs. 7, and upland (*ya*) crops are assessed at rates varying from 4 annas to Rs. 1–8–0 per acre. These figures all refer to state land; other land pays three-fourths of these rates. The average size of a holding (including fallows) is—for irrigated rice, 7½ acres; for *taze* rice, 5¾ acres; for *mayin* rice, 2½ acres; for *mogaung* rice, 6½ acres; for *ya* crops, 8½ acres; and for alluvial (*kaing*) crops, 5¼ acres.

As the result of the summary settlement of the Ngape and Sidoktaya townships in 1901, the rate for irrigated rice has been fixed at Rs. 4 or Rs. 3, according to the quality of the soil, while unirrigated rice pays Rs. 2, *ya* land from 8 annas to R. 1, and alluvial crops from R. 1 to Rs. 5 per acre. The average size of a holding in the summarily settled tract is, for rice land, 4 acres; for gardens, 1½ acres; and for *ya* land, 7 acres.

The following table shows the fluctuations in the revenue since 1890–1, in thousands of rupees:—

	1890-1.	1900-1.	1903-4.
Land revenue . .	90	4,13	4,04
Total revenue . .	...	...	7,70

The large increase in land revenue between 1890–1 and 1900–1 is due to the settlement. *Thathameda* fell, on the introduction of acre rates, from 4 lakhs in 1890–1 to Rs. 2,41,000 in 1900–1, but rose to Rs. 2,58,000 in 1903–4.

Local and municipal government.

The income of the District fund in 1903–4 was Rs. 27,000, half of which was spent on public works. There are two municipalities in the District, those of MINBU and SALIN.

For police purposes the District is in charge of a District Superintendent, and is divided into two subdivisions which are under an Assistant Superintendent or an inspector. The strength of the force is 3 inspectors, 13 head constables, 34 sergeants, and 429 constables; and there are 11 police stations and 13 outposts. The contingent of military police belongs to the Magwe battalion, and consists chiefly of Sikhs and Punjabis with an admixture of Karens. The sanctioned strength is 5 native officers and 180 rifles, of whom 3 native officers and 110 rifles are stationed at Minbu, and the remainder at Salin and Pwinbyu. Minbu no longer contains a jail, and convicts are sent to Magwe. Police and jails.

The District, in spite of its large total of Chins, who are practically all uneducated, had in 1901 the largest proportion of males able to read and write in the Province, namely 53·3 per cent., a result which is largely the outcome of the energy of the local monastic teachers. For the population as a whole, male and female, the proportion was 27·3 per cent. The number of pupils in public and private schools was 3,417 in 1891 and 7,793 in 1901, and the percentage of scholars to the total population of school-going age in the last-named year was estimated at 25. In 1904 there were 9 secondary, 167 primary, and 419 elementary (private) schools, with an attendance of 7,896 (including 349 girls). Of lay institutions the most important is the Government high school at Minbu. The total educational expenditure in 1903–4 amounted to Rs. 21,000, of which Rs. 3,000 was derived from fees, and the rest from Provincial funds. Education.

Minbu and Salin possess hospitals, and there is a small dispensary at Sinbyugyun, at the mouth of the Salin river. The two hospitals have accommodation for 50 in-patients, of whom 508 were treated in 1903, the total number of out-patients during the same year being 15,303, and that of operations 242. Towards their combined income of Rs. 8,300 the two municipalities contributed Rs. 3,900, Provincial funds Rs. 3,700, and private subscribers Rs. 600. The dispensary at Sinbyugyun is maintained wholly from Provincial funds. Hospitals and dispensaries.

Vaccination is compulsory only within the two municipalities. In 1903–4 the number of persons successfully vaccinated was 5,496, representing 24 per 1,000 of population. Vaccination.

[O. S. Parsons, *Settlement Report* (1900).]

Minbu Subdivision.—Southern subdivision of Minbu District, Upper Burma, comprising the SAGU, LEGAING, and NGAPE townships.

Sagu.—South-eastern township of Minbu District, Upper Burma, lying along the Irrawaddy, between 19° 53′ and 20° 23′ N. and 94° 30′ and 95° 2′ E., with an area of 542 square miles, which comprises a stretch of dry undulating country round the town of Minbu. The eastern part of the township is irrigated by the Man river canal system, which is being extended. The population was 43,659 in 1891, and 57,699 in 1901, distributed in one town, MINBU (population, 5,780), the head-quarters of the District, and 197 villages, Sagu (population, 4,294), on the Man river, being the township head-quarters. The area cultivated in 1903–4 was 105 square miles, and the land revenue and *thathameda* amounted to Rs. 1,57,000.

Legaing.—Central township of Minbu District, Upper Burma, lying in the Mon Valley, between 20° 9′ and 20° 29′ N. and 94° 26′ and 94° 48′ E., with an area of 533 square miles. The population was 35,895 in 1891, and 36,397 in 1901, distributed in 146 villages, Legaing (population, 2,787), a village about 15 miles north-west of Minbu, being the head-quarters. A large tract of the township, which is undulating and dry, will be irrigated by the Mon canals now under construction. The area cultivated in 1903–4 was 70 square miles, and the land revenue and *thathameda* amounted to Rs. 1,15,000.

Ngape.—South-western township of Minbu District, Upper Burma, drained by the upper reaches of the Man river, and lying between 19° 50′ and 20° 10′ N. and 94° 17′ and 94° 40′ E., with an area of 362 square miles. The population, which consists largely of Chins, was 13,146 in 1891, and 16,033 in 1901, distributed in 144 villages. Ngape (population, 1,042), a village on the Man river, some 30 miles west of Minbu, is the head-quarters. The township, a large portion of which is covered by the forests of the Arakan Yoma, is sparsely populated, and the cultivable area is small. The area actually cultivated in 1903–4 was only 9 square miles, and the land revenue and *thathameda* amounted to Rs. 33,000.

Salin Subdivision.—Northern subdivision of Minbu District, Upper Burma, comprising the SALIN and SIDOKTAYA townships.

Salin Township.—North-eastern township of Minbu District, Upper Burma, lying along the Irrawaddy, between 20° 20′ and 21° 2′ N. and 94° 18′ and 94° 53′ E., with an area of 741 square miles. The chief feature of the township is its ancient irrigation system, the main canal, from which numerous branches run, being about 18 miles in length. The country

is flat and fertile. The population was 98,922 in 1891, and 100,737 in 1901, distributed in one town, SALIN (population, 7,957), the head-quarters, and 464 villages, of which the most important is Sinbyugyun (population, 5,487), near the Irrawaddy. This is by far the most densely populated township in the District. The area cultivated in 1903–4 was 186 square miles, and the land revenue and *thathameda* amounted to Rs. 3,18,000.

Sidoktaya.—North-western township of Minbu District, Upper Burma, lying between 20° 7′ and 20° 54′ N. and 94° 2′ and 94° 30′ E., on the eastern slopes of the Arakan Yoma, in the Mon river basin, with an area of 1,121 square miles. It is sparsely populated and cursed with a malarious climate which no Burman from the plains can endure. The population fell from 24,337 in 1891 to 22,511 in 1901, and in the latter year included 10,400 Chins, while the nominally Burman population is much mixed with Chin. There are 208 villages, the head-quarters being at Sidoktaya (population, 1,207), on the Mon river. In 1903–4 the area cultivated was 15 square miles, and the land revenue and *thathameda* amounted to Rs. 39,000.

Minbu Town.—Head-quarters of the District and Division of the same name in Upper Burma, situated in 20° 10′ N. and 94° 53′ E., among typical dry zone surroundings on the right bank of the Irrawaddy, almost immediately opposite the town of Magwe[1]. The town has several prominent features. On the north is a large pagoda known as the Red Pagoda ; on the west a sharply defined conical eminence, capped by a pagoda, stretches at right angles to a low range of hills running north and south ; on the south is another hill rising abruptly from the river bank, similarly crowned with pagodas, and topped by a lofty wooden spire erected over an impression of a foot. It is known as Buddha's Foot Hill. The natural southern boundary of Minbu is the Sabwet stream, a sandy nullah communicating with the Irrawaddy about 200 yards south of the last-named shrine. The town is divided into two parts by a small creek called the Dok. The northern or native portion lies near the Irrawaddy, and is usually flooded on the rise of the river. The Deputy-Commissioner's court lies to the south, between the Dok and the southern portion of the town, which stands considerably higher and is not liable to flooding. In this southern area is situated the

[1] The transfer of the Divisional head-quarters to Magwe has been sanctioned, and will probably take place shortly.

civil station, with the club, several of the Government offices and the residences of the local officers for the most part standing up on high ground well above the river bank. Minbu was a small fishing village previous to the annexation of Upper Burma in 1885, but became an important base of operations in 1886, and since then has always been the head-quarters of the District. Its population was 7,270 in 1891, and 5,780 in 1901, having, like Salin, Magwe, Yenangyaung, and other towns in the dry zone, decreased during the decade. The people are occupied mainly in river business, trading, and fishing. A fair amount of trade passes through the town, and the steamers of the Irrawaddy Flotilla Company give regular communication with all ports on the Irrawaddy; but, like Myingyan, Minbu has suffered from the vagaries of the river, which has shown a tendency of late years to form sandbanks in the channel opposite the regular steamer *ghāt*. In the rains the Irrawaddy Flotilla steamers are able to come alongside the town, but during the dry season they have to anchor at a village 2 miles to the south.

A municipal council was formed in 1887 and reconstituted in 1901. The income and expenditure during the ten years ending 1901 averaged nearly Rs. 17,000. In 1903–4 the income was Rs. 21,000, bazar rents contributing Rs. 9,000; and the expenditure was Rs. 19,000, the chief items being conservancy and roads (Rs. 5,000 each). The town hospital contains twenty-eight beds, and 310 in-patients and 8,300 outpatients were treated at it in 1903. The Government high school has a steadily increasing attendance, and boys come to it from all parts of Minbu and Magwe Districts.

Salin Town.—Head-quarters of a subdivision in Minbu District, Upper Burma, situated in 20° 35′ N. and 94° 40′ E., on the right bank of the Salin river, 9 miles west of the Irrawaddy. It is on low ground, surrounded by well-irrigated paddy-fields, and is connected with Sinbyugyun and the Irrawaddy by a good metalled road. According to tradition the town was founded about A.D. 1200 by king Narapadisithu of Pagan, and the ruins of the Burmese wall are still to be traced. The neighbourhood was the scene of active operations at the time of the annexation of Upper Burma. After its occupation in 1886 the town was besieged for three days by the *pongyi* rebel Oktama, who was driven off by a force under Major Atkinson, but that officer fell in the attack.

The population of Salin has fallen of late in the same way as has that of other towns in the dry zone, the actual decrease

having been from 10,345 in 1891 to 7,957 in 1901. The town has a large bazar and is a thriving trade centre, for nearly all the business from the Mon river comes to Salin and not to Minbu, and the main road from the An pass enters the town from the west. Salin was constituted a municipality in 1887. The income and expenditure during the ten years ending 1901 averaged Rs. 21,000. In 1903-4 the receipts were Rs. 21,000, including Rs. 12,000 from the municipal bazar, and Rs. 4,000 house and land tax; and the expenditure was Rs. 23,000, the principal items of outlay being Rs. 7,700 spent on conservancy, Rs. 4,700 on public works, and Rs. 2,500 on the hospital. The municipal hospital has accommodation for 22 in-patients.

Magwe District.—A dry zone District in the Minbu Division of Upper Burma, lying between 19° 39′ and 20° 46′ N. and 94° 48′ and 95° 51′ E., with an area of 2,913 square miles. It is bounded on the north by Myingyan District; on the east by Meiktila and Yamethin Districts; on the south by the Sinbaungwe township of Thayetmyo; and on the west by the Irrawaddy river, which divides it from the District of Minbu. The country is rolling in formation. Beginning from the alluvial belt bordering the Irrawaddy, it rises into a rugged and almost barren strip of land cut up by ravines, which is succeeded farther east by a high-lying, gently undulating plain, about 20 miles broad, which stretches from north to south through the District. Beyond this is a second belt of sterile upland, which culminates in the Pyinkadaw hills in the north; and beyond this again lies the low-lying fertile plain forming the basin of the Yin stream, bordered on the east by the Pegu Yoma. The scenery is most picturesque in the region of the Yoma, though the *yas* on the slopes of the central plain and some of the stretches along the Yin are not without a beauty of their own. Except in the rains, however, the great bulk of the District strikes the observer as being desolate and arid.

Boundaries, configuration, and hill and river systems.

The Irrawaddy, whose waters skirt the District on the west, is its chief waterway and its only navigable one. The Pin, rising on Popa, in Myingyan, flows in a broad channel along the northern boundary of the District, joining the Irrawaddy above the village of Yenangyaung. Three-quarters of the District, however—in fact, all but the north-western corner—lie in the basin of the Yin, which rises near Yindaw in Yamethin District and runs through the 'tail' of the Pegu Yoma into the north-east of Magwe, turning south as it leaves the hills. About 60 miles below this point it receives the waters of the Sadon, Yabe, and Taungu, which drain the south-eastern

quarter of the District. Here the river turns westwards to join the Irrawaddy, into which it empties itself after a course of about 120 miles, 8 miles below Magwe. The Taung-dwingyi plain, watered by the three affluents of the Yin, extends for 45 miles from north to south and is extremely fertile. The Pin and Yin are subject to sudden and severe floods and abound in quicksands, and with the Yabe and Sadon are the only perennial streams, besides the Irrawaddy, in the District. The rest all dry up in the hot season. There are no lakes of any size, but a chain of small swamps, fed by the overflow of the Irrawaddy, extends through a portion of the Myingun township.

Geology. The geological features of the District, especially of the neighbourhood of Yenangyaung, have been described in great detail[1]. The post-pliocene beds may be divided into two portions: lower silts, which occur in hollows lying unconformably on the pliocene strata; and plateau gravels, which are found at higher levels, and consist of rolled pebbles of white quartz, silicified wood, and other matter. The underlying Tertiary rocks have been divided into pliocene (Irrawaddy series), soft friable sandstones with beds of ferruginous conglomerate containing mammalian bones; and miocene (Pegu series) in two stages—the upper, composed of olive clays and sandstones with gypsum, called the Yenangyaung stage; the lower, consisting of greyish clays and sandstones, known as the Prome stage. As in Minbu District, the miocene beds are brought up to the surface by an anticlinal fold, the denudation of which has exposed them over an elliptical area at Yenangyaung, which is surrounded on all sides by the Upper Tertiary (pliocene) sandstones. The Yenangyaung oil is confined to the sandy beds of the lower miocene (or Prome) stage, and occurs at six horizons, the two lowest of which have so far yielded only traces of oil. The productive area is confined to the crest of the anticlinal, and measured little more than half a square mile in 1895. The exploitation of this oil-field is described under Minerals.

Botany. The main botanical data for the District are given below under Forests. Except near the Irrawaddy and on the eastern border, the flora is of the dry type described in the MINBU DISTRICT article.

Fauna. Wild elephants, tigers, bison, and *hsaing* or *tsine* (*Bos sondaicus*) are met with in the Yoma, while the lower spurs of the range abound in barking-deer, leopards, and wild hog. Hog deer and peafowl are found in the plains of

[1] F. Noetling, *Mem. Geol. Survey of India*, vol. xxvii, pt. 2, p. 49.

Taungdwingyi, and the *thamin* or brow-antlered deer is found wherever cultivation is bordered by *indaing* jungle.

Climate and temperature.

The climate is hot and dry, and varies but little throughout the District, the mean temperature, based on the figures for eight years, being 76°. The highest reading recorded during this period was 109° in the month of May, and the lowest 42° in January. The District, as a whole, is healthy, and does not suffer much from cholera and small-pox; but the Taungdwingyi subdivision is feverish in November, December, and January, owing to the proximity of the Yoma.

Rainfall.

The annual rainfall, based on the readings of four stations for eight years, averages 29 inches, but the amount received varies from 23 inches at Yenangyaung to 36 inches at Taungdwingyi. The rainfall not only differs considerably in different parts, but varies a good deal from year to year in the same place.

History and archaeology.

Little is known of the early history of the District. Tradition has it that Magwe town was founded in 1158 and Myingun about a century earlier. When the Myingun prince rebelled against Mindon Min in 1866, his followers in the District raised the standard of revolt and joined him, but the rising was quickly suppressed. In 1885, during the occupation of Upper Burma, a column was sent towards Taungdwingyi, then the nominal head-quarters of the Myede subdivision of Thayetmyo District. On November 30 it encountered the enemy at Thitkokkwin, and two days later inflicted a decisive defeat on them at Nyadaw. Ten days later Taungdwingyi was occupied without further opposition, and the civil administration was organized under an Assistant Commissioner. Later in the year the Pin township was added from Pagan, and Taungdwingyi was constituted a District. In 1888 the Yenangyaung township was added from Minbu, and the head-quarters were removed to Magwe, which gave the new District its name.

The severe loss inflicted on the insurgents in 1885 kept the District quiet for a time, but in the course of a year or two there was a recrudescence of dacoity, which had been put down by April, 1888. In August of that year, however, a pretender, styling himself the Shwekinyo prince, assisted by a leader named Nga Le and other noted dacoits, concerted a rising. The rebels received encouragement from the result of an encounter with the military police, whom they repulsed with loss. This success was followed by others, and it was not till May, 1889, that Nga Le was killed and his following dispersed. Meanwhile constant dacoities took place in the Taungdwingyi subdivision. In April, 1889, a gang of more than 100 dacoits

attacked and burnt the police outpost at Myothit. In May a large band under an outlaw called Buddha Yaza assembled in Pin township, bodies from all parts joined it, and much mischief was done before the rebels were accounted for. On June 1, Mr. Dyson, Assistant Commissioner, was killed while attacking with police a small party under a leader named Tha Ya, but the latter was himself killed soon after and his followers surrendered. An offer of indemnity was made later in the year to all dacoits not actually concerned in murder, excepting one or two specified leaders, and more than 150 men laid down their arms; but the disturbances did not end here. At the end of 1889 Magwe was the only District in Upper Burma where dacoities on a large scale were of daily occurrence; and it was not till the Magwe, Pyinmanā, and Yamethin police, acting under the general control of the Deputy-Commissioner of Pyinmanā, started a systematic campaign against the refugees in the Pegu Yoma, that the dacoits were either killed, captured, or surrendered. The gangs in the northern portion of the District were disposed of in due course by the Deputy-Commissioner, and since then Magwe has been undisturbed.

The Myathalun at Magwe and the Shweyaungdaw and Shwe-indaung in Taungdwingyi are the only noteworthy pagodas. Each of these used to have its annual festival in former times; but now there is only one, at the Myathalun, which has of late been revived, and is held every October. Near Kokkogwa in the Satthwa township are the remains of an ancient capital, Paikthado or Peikthano. The town must have had its day of importance, but little is now known about it.

The people.

The population was 219,190 in 1891 and 246,708 in 1901. Its distribution in the latter year is shown in the following table:—

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Magwe	588	1	155	53,095	90	+ 26	13,784
Myingun	447	...	101	26,029	58	+ 7	7,463
Satthwa	469	1	223	53,424	114	...	13,772
Myothit	403	...	125	42,925	107	+ 26	10,420
Natmauk	887	...	181	53,262	60	+ 25	13,122
Yenangyaung	119	...	42	17,973	151	− 22	3,136
District total	2,913	2	827	246,708	85	+ 12	61,697

Magwe and Taungdwingyi are the chief towns. The density of population is considerably above the average of the Minbu Division. There has been a certain amount of immigration from the neighbouring District of Myingyan; but although the population increased by 27,500 persons between 1891 and 1901, the total number of persons born in other parts of Burma and resident in the District in 1901 was only 7,700, and most of the increase may be looked upon as due to natural causes. The extension of the oil industry is probably the cause of the decrease in the agricultural population of the Yenangyaung township. Altogether 99 per cent. of the people are Buddhists, and only 1½ per cent. speak languages other than Burmese. Of Christians there are 151, of whom 73 are natives.

Race and occupation. Burmans form over 98 per cent. of the total population. Immigrants from India proper numbered 1,209 in 1901, out of an Indian population of 1,595, the total being equally divided between Musalmāns and Hindus. They are settled mainly in the two towns of the District and in the Yenangyaung township. There are just under 2,000 Chins, confined to the Satthwa township in the south-east of the District. The population directly dependent on agriculture in 1901 was nearly 79 per cent. of the District total, half of whom are *taungya* (shifting) cultivators.

General agricultural conditions. The Satthwa and Myothit townships, fringed on the east by the slopes of the Yoma, are watered by several streams, and in them the land is largely irrigated. The whole tract is studded with villages embowered in trees; the population here, too, is denser than in other parts, small gardens are seen in every village, and the people appear to be well-to-do. In the other four townships, forming the dry portion of the District, the villages are far apart, gardens and shade-giving trees are rarely met with, and, except in the oil area of Yenangyaung, the inhabitants are not prosperous.

The irrigated tracts are characterized by loamy soils impregnated with silt, varying in quality according to the proportions of clay and sand and averaging 3 feet in depth. In the dry tracts a red earth predominates, containing loam and sand. The District exhibits also several kinds of extremely sandy soils, and the well-known black cotton soil. In the case of the last, the depth is generally 2 to 2½ feet; but in the *kyauktaw*, or ravine-intersected portions of the District, the land is gravelly and very poor, and the soil barely 8 inches deep.

Agriculture is entirely dependent on the rainfall, even in the

irrigated tracts; and, as the rain is scanty, it has been calculated that one very poor year almost reaching famine point, as well as one bumper year, may be expected in every five or six. The rains begin about the middle or end of May, and end late in October, the wettest month being August. The cultivation consists of both 'wet' and 'dry' crops, and it frequently happens that a rainfall which suits one is detrimental to the other. Sesamum, which is the principal crop in the dry tracts, is generally sown after the first downpour in May, and thrives best in a season of moderate rainfall, with short intervals of bright sunny days. Maize requires a rainfall similar to sesamum; it is sown about the same time, generally mixed with beans and vegetables in the *yas* around villages. *Jowār* is also sown as a first crop in May or June, and little rain is needed till the ears begin to fill in October. It is generally, however, cultivated as a fodder crop, when it follows sesamum. Groundnut can stand drought even better than sesamum, and is now extensively grown in the *indaing* tracts. Rice cultivation is carried on in the same way as elsewhere in the dry zone, mainly in the rich Taungdwingyi plain in the Satthwa and Myothit townships. *Mogaung* rice, which, as its name implies, depends entirely on the rainfall, is found in small patches wherever it is possible to cultivate it.

Chief agricultural statistics and principal crops.

Being in the dry zone, the cultivated area varies considerably from year to year. For 1903-4 the main statistics are given below, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Magwe	588	174	2	899
Myingun	447	101	1	
Satthwa	469	127	69	
Myothit	403	107	19	
Natmauk	887	167	3	
Yenangyaung	119	30	...	
Total	2,913	706	94	899

The staple crop is sesamum, covering about 305 square miles, about a third of which is found in the Magwe township. Next in order of importance is *jowār*, occupying 208 square miles, about three-fourths of the whole being grown in the Magwe and Natmauk townships. The area under rice is 172 square miles, of which 103 square miles are in the Satthwa township and 37 square miles in Myothit, both in the great Satthwa plain. A little *mayin* (hot-season rice) is grown

in the riverside townships. Maize covers a considerable area; about 28 square miles are under various kinds of pulse, and about 4,300 acres under cotton, while tobacco occupies slightly more than 2,000 acres, for the most part in the river-washed townships of Magwe and Myingun. The toddy-palm is cultivated, mostly in the Yenangyaung township.

Improvements in agricultural practice.

Expansion of cultivation has taken place of late and will probably continue; but the increase is likely to be confined almost entirely to the country skirting the forest Reserves, for the soil of the arable waste in the dry tract is poor, the rainfall scanty, and settlers are not attracted thither. There has been no change in the description of produce raised since annexation, but the area under ground-nut has been largely extended, and seed from Madras has been introduced of late years, which is much appreciated. Havana tobacco seed has not been tried till lately, and it has not done well so far.

Cattle, &c.

The rearing of goats for milk is common in the *ya* (upland) villages. Ponies are of the usual kind as a rule, but some good animals of a fair height are occasionally met with, and fetch a good price. The military police get most of their remounts from Salin and Pakokku. The breed of cattle in the District is of the ordinary type, and stock-raising is confined principally to the *ya* tracts. There are no 'notified' grazing-grounds, and none are required, as plenty of fodder is always available.

Irrigation and fisheries.

Irrigation is carried out largely by means of roughly constructed timber-weirs, called *thitse*, erected by the people across the many small streams which take their rise in the Yoma, and flow through the Myothit and Satthwa townships. In the Yin stream sand-weirs, called *these*, are thrown up to divert the water. The only irrigation works maintained by Government are the Segyi and Taungtha tanks, situated near Shwebandaw in the Natmauk township, which command an area of 1,000 acres. These tanks were in disrepair when the country was annexed, but were restored by the Public Works department as a famine relief work in 1891–2, and now contain water all the year round. The Kandawgyi tank in the Satthwa township, a private work, commands an area of 1,300 acres. There are several other small tanks in different parts of the District, but all wholly depend for their contents on the rainfall. The irrigated area classed as secure is 40 per cent. of the irrigable area of the District, and the total area irrigated in 1903–4 was 94 square miles, 70 square miles of which were in the Satthwa township and 19 in Myothit.

No important inland fisheries exist, but the shifting pools which are found after the Irrawaddy floods subside are worked annually.

Forests. The forest Reserves of Magwe form one compact block in the east of the District, extending from the southern boundary of Satthwa to the northern boundary of Myothit, including the forest-clad slopes of the Pegu Yoma, the crest of which range forms the eastern, while the limits of the cultivated area brought under settlement forms the western boundary of the 'reserved' tract. The total area is 399 square miles, including the Sun Reserve (92 square miles); the Sadon (92 square miles); the Ngamin (79 square miles); the Yinmale (16 square miles); the Kinmundaung (51 square miles); the Kyaukmidaung (27 square miles); and the Yabe (42 square miles). *Padauk* (*Pterocarpus indicus*) and teak are found in all the Reserves, but *padauk* is worked only for local use. Cutch occurs in the three northern Reserves, but has been worked out. *Thitya* (*Shorea obtusa*) and *ingyin* (*Pentacme siamensis*) are common; and *pyingado* (*Xylia dolabriformis*) is plentiful, but its timber cannot be profitably put on the market owing to the distance it would have to be carted. *Kusan* (*Hymenodictyon thyrsiflorum*), *taukkyan* (*Terminalia tomentosa*), and *in* (*Dipterocarpus tuberculatus*) are the only other species that are worked for timber. Bamboos are not found in any quantity in other portions of the District, but a considerable number are cut yearly in all the Reserves. Black varnish is extracted in a few localities from the *thitsī* tree (*Melanorrhoea usitata*), which grows in *indaing* jungle; and *shaw* fibre is obtainable from two species of *Sterculia* which are common in the Reserves. The mulberry is cultivated on the alluvial banks of some of the small streams by Yabeins, who rear silkworms. The only teak plantation, a very poor one of 60 acres, was planted in 1897 at Thakwagon in the Ngamin Reserve. In 1903, 109 acres in the Sadon Reserve were cleared by *taungya* cultivators and sown with teak. Besides the Reserves, there is an area of 500 square miles of unclassed forest. Sanction has been accorded to a five years' programme of fire-protection, and by 1909 it is expected that the whole of the Reserves will be protected. In 1903-4 the forest receipts amounted to Rs. 85,000. A survey has recently been completed, and it is hoped that Magwe will show a steadily growing surplus in the future.

Minerals. Of the minerals found, petroleum is by far the most important. It is obtained in large quantities at Yenangyaung in the north-west corner of the District, and probably exists in paying

quantities in other parts where the geological formation of the soil is similar. The Burma Oil Company is the only European company in this field. Drilling operations were first started in 1888 on the principle known as the American cable system, and the work has continued up to date. The engineers and drillers are mostly Americans, and about 400 natives are employed at wages ranging from Rs. 15 to Rs. 45 a month. The oil is shipped in bulk, in special flats built for the purpose, by the Irrawaddy Flotilla Company to Rangoon, where it is refined and, with its products, either exported to Europe, India, and the Straits Settlements, or sold for use in the Province. The Burma Oil Company has surveyed the country from Rangoon to Yenangyaung, with a view to the laying of a pipe-line which will take the oil direct overland to Rangoon. The oil is employed in its crude state as fuel by the Irrawaddy Flotilla Company, and is bought up largely at Yenangyaung for use all over Burma as an illuminant, or as a varnish for preserving woodwork or matting. Natural gas, obtained from the borings, furnishes the company with lighting and fuel for their furnaces. The Burmese wells, which are worked on the rope-and-pulley principle, give work to about 300 or 400 Burman coolies, who earn from 4 annas to 8 annas a day. Of recent years the air-pump and diver's helmet have been introduced, and a small mirror placed over each well to reflect the light. The depths of these wells vary from 135 to 400 feet, the majority being 250 to 300 feet deep. The native miners or *twinzas* who work their own wells sell most of their oil to the company. The royalty at present paid to Government by the company is 8 annas per 365 lb. The amount realized in 1900–1 was 3·3 lakhs, and the yield of oil was 27 million gallons. In 1903 the royalty rose to 6·7 lakhs and the output to 57 million gallons.

Salt, limestone, and pottery clay are worked in a small way in a few places in the District. Sandstone is obtainable all over the hilly tracts, but is not extracted for trade purposes.

Arts and manufactures. The District, apart from the oil-field, being almost purely agricultural, few regular industries are carried on. Sericulture is practised to a small extent in eleven villages bordering the forest Reserves in the Satthwa townships, but the industry is languishing. A little silk-weaving is done, and cotton cloths for home use are still largely woven all over the District, every village having a few looms. A handicraft peculiar to the District is practised in the Satthwa township near the Yoma. This is the manufacture of household dishes, such as platters,

trays, bowls, and the like, which are turned out of wood and lacquered. The price of a plain bowl about a foot in diameter is from Rs. 2 to Rs. 3. Another industry, which has sprung up since the annexation in Taungdwingyi, is the manufacture of cart-wheels after the European fashion. The wheels are made of teak or *kokko* wood (*Albizzia Lebbek*); they sell at Rs. 27 the pair, and are now in general use throughout the District.

Commerce and trade.

The chief trading centres are Magwe, Yenangyaung, Myingun, Migyaungye, and Minywa, all situated on the Irrawaddy, whence the whole of the import and export trade of the District is conducted. Taungdwingyi, Myothit, and Natmauk, lying inland, are distributing centres. Natmauk also receives goods carted over from Pyawbwe on the railway in Yamethin District. Rice from the southern end of the Taungdwingyi plain is sent to Sinbaungwe in Thayetmyo District. There are eight bazars, situated at Magwe, Yenangyaung, Myingun, Natmauk, Myothit, Taungdwingyi, Satthwa, and Kokkogwa. Goods are imported and exported by steamer and country boat, all internal trade being carried on by carts. By far the most important exports are petroleum and sesamum oil, others being teak, paddy, sesamum seed, jaggery, hides and horns, ground-nuts, and other vegetable products. Paddy and maize are regularly exported to Kyaukpadaung from Taungdwingyi, and in favourable years also to Minhla, Sinbaungwe, and Yamethin. *Ngapi*, salt, salted fish, rice, pickled tea, coco-nut oil, betel-nuts, timber, and iron are the main imports from Lower Burma. Piece-goods, woollen fabrics, cotton twist, hardware, and manufactured articles of all sorts are imported from Rangoon. Besides a good deal of local traffic in cattle, a large number of animals are brought up yearly by men in touch with dealers in Lower Burma, who go round the rural tracts and when they have collected a sufficient number of beasts drive them to Allanmyo and Prome or to Pyawbwe, whence they rail them to Rangoon.

Means of communication.

No railway has been made in the District. The Irrawaddy is the only waterway; and the Irrawaddy Flotilla Company's mail steamers pass up and down the river twice weekly, touching at Yenangyaung but not at Magwe, which is cut off from the channel in the dry season by a vast sandbank. A steam ferry plies between Thayetmyo and Minbu, calling at all large villages on either bank, and another ferry launch runs between Minbu and Sinbyugyun in the north of Minbu District, calling at Magwe and the chief villages. A small ferry

launch also makes frequent trips daily between Minbu and Magwe, which lie opposite each other on the Irrawaddy. There are 21 miles of metalled and 158 miles of unmetalled roads, all of which are maintained by the Public Works department, and are for the most part bridged, drained, and embanked. They lie, however, mainly in the dry tracts, where traffic is impeded by the sand in the dry season and by the rains in the wet. The dry tracts possess several good country cart-tracks open all the year round, while those in the rice area are closed to cart traffic in the rains. The main roads are: Natmauk to Magwe, 36 miles; Magwe to Mingin, 3 miles; Magwe to Thitagauk, 26¼ miles; Natmauk to Satthwa through Myothit and Taungdwingyi, 37 miles; Taungdwingyi to Migyaungye, 33 miles; Myingun to Sainggya, 9 miles; Taungdwingyi to Ngamin, 6½ miles; Natmauk to Shwebandaw, 23 miles.

Famine. With a precarious rainfall, the District is always liable to partial scarcity. The *Mahāthayawgyi* or great famine, the only calamity of this nature that lives in the memory of the people, is said to have occurred about 1824–5, the year of the first Burmese War. While it was raging the *indaing* tracts were deserted and lapsed into jungle, and a number of people died of starvation. There was also great distress in 1852 and 1853, during the second Burmese War; and the situation was rendered all the more acute by the fact that at the critical time the Burmese troops passed through the District, devastating the country as they went. The year 1864 was another year of great scarcity, but fortunately there were no deaths from its effects. This last famine was known in Natmauk as the *Chaukpyithayaw*, because paddy sold at 6 *pyi* the rupee[1], or nearly three times the ordinary rate. Two years later, during the Myingun prince's rebellion, another year of scarcity occurred. The worst year since annexation is said by the people to have been 1891–2. The rainfall during that year was not marked by any insufficiency, but it fell at fitful intervals, and on all sides the crops withered. Relief works were started in November on the Taungtha and Segyi tanks in the Natmauk township, where the distress was greatest, and a sum of Rs. 12,900 was spent in affording assistance. The efforts made were such that not a single death occurred from starvation, but a larger number of families than usual emigrated to Lower Burma. The year 1896–7 was again a disastrous one; the rainfall was very short and the two previous years had also been unfavourable. The area most affected was the same as in

[1] A *pyi* is one-sixteenth of an ordinary basket.

1892. As a relief work, a road from Natmauk to Shwebandaw was constructed, agricultural advances were made, and the *thathameda* rates were reduced. No lives were lost, but emigration to Lower Burma was again notably large.

District subdivisions and staff.

For administrative purposes the District is divided into three subdivisions: Magwe, comprising the MAGWE and MYINGUN townships; Taungdwingyi, comprising the NATMAUK, MYOTHIT, and SATTHWA townships; and the subdivision and township of YENANGYAUNG. The Magwe subdivision has no subdivisional officer, but is under the direct control of the Deputy-Commissioner. The other subdivisions and townships are under the usual executive officers. The total number of village headmen is 825. The District forms a subdivision of the Thayetmyo Public Works division. The Deputy-Conservator of Forests has his head-quarters in Minbu District.

Civil and criminal justice.

Each subdivisional or township officer is subdivisional or township magistrate or judge in his charge; the subdivisional officer, Taungdwingyi, is also additional judge of the District court. The treasury officer at Magwe is an additional judge of the Magwe township court; and at Taungdwingyi there is an additional judge of the Myothit and Satthwa township courts. Except that cattle-theft is exceptionally rife, the crime of the District is of the ordinary type.

Revenue administration.

Under Burmese rule the main source of revenue was *thathameda*, assessed by *thamadis* (specially selected village elders) on the same principles as at the present day. In addition, a *kyun* or island cultivation tax was assessed by the revenue court at Mandalay at so much per island. Ferries and fisheries were leased out by the government, and customs were levied on goods carried into and out of the Satthwa township, and on boats as well as on goods landed on the banks of the Irrawaddy. A comparatively small area paid land revenue as state land at the rate of one quarter of the gross produce, and this is the only tract in which land revenue is at present raised in the District. A survey has, however, now been completed, and settlement rates have been proposed, which, it is calculated, should bring about an enhancement of 30 per cent. According to the rates suggested, rice land will pay from R. 1 to Rs. 4-8-0 per acre, gardens from Rs. 2 to Rs. 15, and the rates in the dry tract will vary from 6 annas to Rs. 2-12-0 per acre. The average area of a holding in Magwe is 12 acres of rice land and 18 acres in the *ya*, or upland, tracts. A form of tenure peculiar to the District and its immediate neighbourhood is that known as *athi*, the principal features of which are

that the owner must be a resident of the circle in which the land he holds is situated, and must not own more land than he can cultivate himself. The *thugyi* can allot, increase, or curtail his holding, and the land is inalienable (so long as the necessary conditions are fulfilled) though heritable.

The following table shows the growth of the revenue since 1890–1, in thousands of rupees:—

	1890-1.	1900-1.	1903-4.
Land revenue	2	27	56
Total revenue	4,52	8,35	10,00

A special source of revenue is the royalty on the output from the Yenangyaung oil-wells, amounting to nearly $5\frac{3}{4}$ lakhs in 1903–4. Next to this in importance is *thathameda*, which rose from Rs. 3,48,900 in 1890–1 to Rs. 4,64,000 in 1900–1, but fell again to Rs. 4,51,000 in 1903–4. At present the land revenue is small, but when acre rates have been introduced the *thathameda* will be diminished by $1\frac{1}{2}$ lakhs and the land revenue will be proportionately increased.

Local and municipal government. There is only one municipality, that of TAUNGDWINGYI. In 1901 Magwe town was declared a 'notified area' and a town committee was formed. The District fund administered by the Deputy-Commissioner, which derives its revenue from various local sources, had, in 1903–4, an income of Rs. 16,500, and the chief item of expenditure was Rs. 5,000 on public works.

Police and jails. Under the District Superintendent of police are an Assistant Superintendent, 3 inspectors, 9 head constables, 25 sergeants, and 291 constables, of whom 32 are mounted. They are distributed in 13 police stations and 6 outposts. Magwe is the head-quarters of a military police battalion, which garrisons Taungdwingyi, and stations in Minbu, Thayetmyo, and Pakokku Districts. The strength is one commandant, 3 assistant commandants, 27 native officers, and 1,073 rank and file.

There are two jails, one at Magwe, with accommodation for 200 prisoners, and the other at Taungdwingyi, capable of housing 89. The industries carried on are carpentry, gardening, stone-breaking, and (at Magwe) wheat-grinding for the military police.

Education. The standard of literacy in Magwe is high. Though the proportion of males able to read and write in 1901 was not as large as in the neighbouring District of Minbu, it fell

below that of Minbu and two other Districts only. For both sexes together the proportion was 25 per cent. (50 males and 1.6 females). The number of pupils was 2,277 in 1891, and 9,233 in 1901. In 1903–4, 7 secondary, 167 primary, and 430 elementary (private) schools had a total attendance of 8,919 pupils (including 341 girls). The expenditure on education amounted to Rs. 6,300, all derived from Provincial funds.

Hospitals. There are 3 civil hospitals, with accommodation for 59 in-patients. In 1903 the number of cases treated was 23,180, of whom 653 were in-patients, and 535 operations were performed. Towards the combined income of Rs. 11,300 in 1903, municipal funds contributed Rs. 3,500, Provincial funds Rs. 6,900, and subscriptions Rs. 850.

Vaccination. Vaccination is compulsory only within the limits of the Taungdwingyi municipality. In 1903–4 the number of persons successfully vaccinated was 10,154, representing 41 per 1,000 of population.

Magwe Subdivision.—Western subdivision of Magwe District, Upper Burma, comprising the MAGWE and MYINGUN townships.

Magwe Township.—Western township of Magwe District, Upper Burma, lying along the Irrawaddy, between 20° 4′ and 20° 31′ N. and 94° 52′ and 95° 18′ E., with an area of 588 square miles. It consists of an ill-watered sandy tract, on which *jowār* and sesamum are the chief crops. The population was 42,001 in 1891, and 53,095 in 1901, distributed in one town, MAGWE (population, 6,232), the head-quarters, and 155 villages. In 1903–4 the area cultivated was 174 square miles, and the land revenue and *thathameda* amounted to Rs. 1,38,000.

Myingun.—South-western township of Magwe District, Upper Burma, lying along the Irrawaddy, between 19° 43′ and 20° 8′ N. and 95° 1′ and 95° 28′ E., with an area of 447 square miles. The soil consists mainly of *indaing*, a dry sandy earth on which sesamum and millets are the only crops. The population was 24,354 in 1891, and 26,029 in 1901, distributed in 101 villages, Myingun (population, 1,342), on the Irrawaddy south of Magwe, being the head-quarters. The area cultivated in 1903–4 was 101 square miles, and the land revenue and *thathameda* amounted to Rs. 69,000.

Taungdwingyi Subdivision. — Eastern subdivision of Magwe District, Upper Burma, comprising the SATTHWA, MYOTHIT, and NATMAUK townships.

Satthwa.—South-eastern township of Magwe District, Upper Burma, lying between 19° 39′ and 20° 9′ N. and 95° 19′ and 95° 51′ E., with an area of 469 square miles. The township is one of the great rice-producing areas of Upper Burma, being low-lying and fairly well watered. Near Kokkogwa, on the Yabe stream, is the old capital of Paikthado, the walls of three sides of which remain. The population was 53,216 in 1891, and 53,424 in 1901, distributed in one town, TAUNGDWINGYI (population, 5,041), and 223 villages. There were about 1,800 Chins in the township in 1901. The head-quarters are at Satthwa (population, 288), a village due south of Taungdwingyi, where there is an important bazar. In 1903–4 the area cultivated was 127 square miles, and the land revenue and *thathameda* amounted to Rs. 86,000.

Myothit.—Eastern township of Magwe District, Upper Burma, lying between 20° 0′ and 20° 19′ N. and 95° 13′ and 95° 51′ E., with an area of 403 square miles. The eastern portion of the township, watered by the Yin, lies low, and is extensively cultivated with rice. The western resembles the Myingun township, in so far as it has a dry soil on which only millet and sesamum are grown. The population was 33,994 in 1891, and 42,925 in 1901, distributed in 125 villages. Myothit (population, 1,638), on the Yin river, about 35 miles due east of Magwe, is the head-quarters. In 1903–4 the area cultivated was 107 square miles, and the land revenue and *thathameda* amounted to Rs. 6,500.

Natmauk.—North-eastern township of Magwe District, Upper Burma, lying between 20° 15′ and 20° 46′ N. and 95° 2′ and 95° 49′ E., with an area of 887 square miles. The greater part of its area is dry and poorly watered. Rice is raised in the neighbourhood of the Yin river, while over the rest of the township the chief crops are millet and sesamum. The population was 42,611 in 1891, and 53,262 in 1901, distributed in 181 villages. The head-quarters are at Natmauk (population, 530), on the Yin river, 36 miles north-east of Magwe, with which it is connected by a good road. In 1903–4 the area cultivated was 167 square miles, and the land revenue and *thathameda* amounted to Rs. 82,000.

Yenangyaung.—North-western subdivision and township of Magwe District, Upper Burma, lying along the Irrawaddy, between 20° 21′ and 20° 37′ N. and 94° 48′ and 95° 5′ E., with an area of 119 square miles. The chief feature of the township, which consists of dry rolling upland, is its oil-field, the largest in Burma, details of which are given in

the article on MAGWE DISTRICT. The population was 23,014 in 1891, and 17,973 in 1901, distributed in 42 villages, the head-quarters being at Yenangyaung (population, 3,246), about 29 miles above Magwe on the eastern bank of the Irrawaddy. In 1903-4 the area cultivated was 30 square miles, and the land revenue and *thathameda* amounted to Rs. 67,000.

Magwe Town.—Head-quarters of the District and township of the same name in Upper Burma, situated in 20° 9′ N. and 94° 55′ E.[1] Population (1901), 6,232. It consists of a group of villages, collected round the civil station on the eastern bank of the Irrawaddy, the main feature, as seen from the river, being the Myathalun pagoda built on a slight eminence. The town has one main street running parallel with the bank, with many minor thoroughfares behind; and the surrounding country is dry, open, and rolling, divided into fields by hedges. River steamers are prevented by the formation of large sandbanks from coming alongside at the town, and have to stop at Mingin, about 3 miles lower down. The town is said to have been founded in the twelfth century, but has no history. The civil station contains the usual offices, a jail, and barracks for the civil and military police. The affairs of Magwe are administered by a town committee of five members, constituted in 1901. The fund controlled by this committee had, in 1903-4, an income of Rs. 11,500 and an expenditure of Rs. 10,400. The civil hospital has twenty-two beds, and is supported entirely by Provincial funds and private subscriptions.

Taungdwingyi Town.—Head-quarters of the subdivision of the same name in the Satthwa township of Magwe District, Upper Burma, situated in 20° N. and 95° 33′ E., in the centre of the country watered by the Yin and its tributaries, rather more than 40 miles to the south-east of the District head-quarters. Population (1901), 5,941. Taungdwingyi was occupied in the expedition of 1885-6, and was until 1888 the head-quarters of a District made up of the greater part of what is now the Magwe District. The town is a fairly prosperous trade centre, has a large bazar, and does a steady trade in cart-wheels and lacquered wood ware. It was constituted a municipality in 1887. During the ten years ending 1901 the income and expenditure averaged a little more

[1] The transfer of the head-quarters of the Minbu Division from Minbu to Magwe has been sanctioned, and will probably take place shortly.

than Rs. 12,000. In 1903–4 the receipts were Rs. 15,300, bazar rents, &c., producing Rs. 12,100; and the expenditure was Rs. 14,900, the chief items of outlay being Rs. 3,800 on the town hospital and Rs. 2,900 each on conservancy and public works. The hospital has thirty beds. A jail is still maintained at Taungdwingyi, one of the survivals from the time when the town was the head-quarters of a District.

MANDALAY DIVISION

Mandalay Division.—North-eastern Division of Upper Burma, lying between 21° 42′ and 27° 20′ N. and 95° 6′ and 98° 20′ E., with an area of 29,373 square miles. It is composed of five Districts (all abutting on the Irrawaddy), MANDALAY and the RUBY MINES on the east of the river, and KATHĀ, BHAMO, and MYITKYINĀ astride of it. On the north it is bounded by unadministered country; on the east by China and the Northern Shan States; on the south by the Kyaukse District of the Meiktila Division; and on the west by the Sagaing Division, from which it is separated by the Irrawaddy and the watershed severing the basins of the Irrawaddy and the Chindwin. The head-quarters are at MANDALAY CITY in the extreme south of the Division; but all the District head-quarters, with the exception of Mogok, are readily accessible by rail and river. The Commissioner exercises a nominal control over the Hkamti Long (Shan) States on the upper reaches of the Malikha. The population of the Division was returned at 592,625 in 1891 and 777,338 in 1901. The earlier Census, however, excluded a large part of Kathā District, then forming the Wuntho State, and also portions of Bhamo and Myitkyinā Districts. The distribution of the population in 1901 is shown in the table below:—

District.	Area in square miles.	Population in 1901.	Land revenue and *thathameda* in 1903-4, in thousands of rupees.
Mandalay	2,117	366,507	8,42
Bhamo	4,146	79,515	1,31
Myitkyinā	10,640	67,399	93
Kathā	6,994	176,223	5,34
Ruby Mines (including Möngmit)	5,476	87,694	90 *
Total	29,373	777,338	16,90

* Excluding revenue of Möngmit.

The Division contains seven towns—MANDALAY (population, 183,816), AMARAPURA (9,103), MAYMYO (6,223), BHAMO

(10,734), and MOGOK, KATHĀ, and MYITKYINĀ; and there are 5,413 villages. Mandalay, Mogok, and Bhamo are important industrial and trade centres. Burmans predominate largely, numbering 451,161 in 1901. They form almost the whole population of Mandalay District, and the larger part of that of Kathā, and are well represented in the Ruby Mines and Bhamo, but are comparatively scarce in Myitkyinā. The Shans numbered 110,728 in 1901, distributed over all the five Districts, but nowhere in the majority. In Mandalay District they are confined to the hilly Maymyo township. The number of Kachins in 1901 was 87,790. They form the greater part of the population of Myitkyinā District, are the prevalent race in Bhamo, and are common in Kathā and the Ruby Mines. A portion of the north-western area of Kathā is peopled by the Kadus, who numbered 34,521 in 1901. Danus to the number of 6,276 inhabit the hills in Mandalay District. Chinamen are numerous in all the Districts excepting Kathā, and aggregated 9,463 at the last Census. Natives of India are distributed all over the Division, for the most part in or near the towns and District head-quarters. They include 25,391 Musalmāns, 21,894 Hindus, and 2,149 Sikhs. Of the indigenous races the Burmans and Shans profess Buddhism, which had 634,000 adherents in 1901, while the Kachins for the most part are to be reckoned among the Animists, who numbered about 88,000. Christians numbered 5,663.

Boundaries, configuration, and hill and river systems.

Mandalay District (Burmese, *Mandale*).—District of the Mandalay Division of Upper Burma, lying between 21° 42′ and 22° 46′ N. and 95° 54′ and 96° 46′ E., with an area of 2,117 square miles. It is bounded on the north by the Ruby Mines District; on the south by the State of Lawksawk and Kyaukse and Sagaing Districts; on the east by the State of Hsīpaw; and on the west by the Irrawaddy, which divides it from Sagaing and Shwebo Districts.

The main feature of the District is the wide plain, about 700 square miles in extent, which occupies about one-third of the area, spreading from the Irrawaddy eastwards to the foot of the Shan plateau, and gradually increasing in width from north to south. This wedge-shaped level slopes both southward and westward, and is, with the exception of portions that are irrigated by canals or tanks, liable to drought by reason of the uncertainty of the rainfall. The area flooded by the rivers during the rains is about 150 square miles. To the north and east of the plain are the hills forming the western edge of the Shan plateau, which run for the most part in broken parallels

north and south. Those in the north, however, taking off from the Ruby Mines mountain group, end abruptly north of the Sagyin hill, and cover about one-half of the northernmost township. The highest points in this system are from 2,000 to 3,600 feet above the sea. The rising ground to the east takes in the whole of the Maymyo subdivision. It rises very steeply from the plain, and develops into a picturesque plateau, 3,000 feet high, bounded on the east by a deep steep-sided gorge. Conspicuous hills in this plateau tower to a height of 4,000 and 4,700 feet. From the level plain in the Irrawaddy valley rise isolated limestone hills, of which the best known are the Sagyin hill (800 feet), famous for its alabaster quarries; Mandalay hill (954 feet), at the north-east corner of the city, of which it commands a noble view; and the Yankin hill, due east of the city, interesting for its images of fish, carved in a natural cave, which are worshipped in times of scarcity of rain.

The main rivers are the IRRAWADDY, the Myitnge, and the Madaya. The two latter are tributaries of the former, which skirts the western boundary of the District throughout its entire length (75 miles), and is studded with rich alluvial islands whose movements from one side of the channel to the other give considerable trouble to the officials concerned in the administration of the Districts abutting on the stream. The MYITNGE (or Doktawaddy), known as the Nam Tu by the Shans, forms part of the eastern and practically the whole of the southern boundary of the District, sweeping round in a narrow cañon from south to north-west, and emerging from the hills at the foot of a striking bluff, about 2,000 feet high, locally known as Kywetnapa, or 'rat's snout.' It is navigable only to the foot of the hills, its course above being full of rapids and falls. The Madaya river, known by the Shans as the Nam Pi, and locally as the Chaungmagyi, rises in the Shan States and flows at first southwards, forming part of the eastern boundary of the District, after which it turns westwards, and joins the Irrawaddy about 25 miles above Mandalay. Close to its debouchure from the hills are the headworks of the new MANDALAY CANAL, which distributes its waters over the eastern part of the plain almost to the Myitnge river.

Lakes. Of lakes proper there is none, though several large areas are inundated to a considerable depth in the rains, the chief being the Aungbinle lake east of Mandalay, the Nanda lake 21 miles north-north-east of the city, the Shwepyi in the north of the District, and the Taungthaman close to Amarapura. The Mandalay Canal is, however, fast converting the first two into

paddy-fields. The last two are lagoons fed from the Irrawaddy, which are dammed for fishing and cultivation when the river falls.

The plain is to a great extent covered with alluvial deposit from the Irrawaddy. The isolated hills are of crystalline limestone, belonging to the period of Mogok gneiss. In the Sagyin Hills rubies are found in the *débris* resulting from the denudation of the limestone. The hilly tract, the edge of the Shan plateau, is composed of palaeozoic rocks, probably faulted down against the crystalline limestone. A fringe of Devonian limestone extends along the outer edge of the plateau, followed by a zone of Silurian sandstone, shales, and limestones, which occupy most of the broken country below its crest. The Silurians rest unconformably upon a series of quartzites and slaty shales which are probably of Cambrian age. Near Zibingyi (on the Lashio railway), a narrow band of black shaly limestone is found at the base of the Devonian limestone, containing graptolites and fossils of Upper Silurian age. The surface of the plateau extending from Zibingyi to beyond Maymyo is covered with Devonian limestones, the denudation of which has exposed the Silurian rocks beneath in the hilly country north of Maymyo. The shales of the Lower Silurian formation are highly fossiliferous, containing large numbers of detached plates of cystideans and fragments of crinoid stems. Geology

The forest produce is described below. The Maymyo plateau is extraordinarily productive of flora both indigenous and foreign. All kinds of orchids and lilies grow wild; English blooms of every description flourish; and the *padauk* (*Pterocarpus indicus*), the *ingyin* (*Pentacme siamensis*), the *saga-wa* and *saga-sein* (*Michelia Champaca*), the *gangaw* (*Mesua ferrea*), and the *sabe* are all met with. Botany.

The fauna does not greatly differ from that of Upper Burma generally. The elephant, the bison, and the *tsine* or *hsaing* (*Bos sondaicus*) are met with in the hilly tracts in the north and east. The barking-deer (*gyi*) is ubiquitous, and the *sāmbar* and hog deer (*daye*) are fairly common. The serow (Burmese, *tawseik* or 'wild goat') is occasionally met with in the hills. Tigers and leopards are common both in the hills and on the plain. Wild hog cause a good deal of destruction to the crops at the foot of the slopes, and two species of black bear (Malay and Himālayan) frequent the hills of the Maymyo subdivision. Fauna.

The climate is dry and healthy. From April to August strong winds prevail. In the plains the thermometer rises Climate and temperature.

frequently in the hot season to 105° or 107° in the shade, and the minimum, in December, is about 55°. Occasionally temperatures of 112° have been recorded in April. In the hills the range is from 32° to 90°. The Maymyo plateau is, except at the beginning and end of the rains, very healthy, and is at all seasons temperate. The average minimum at Maymyo in December is 38° and the maximum in May is 86°, though six degrees of frost and temperatures exceeding 90° have been recorded.

Rainfall. The rainfall in the plains is meagre, and somewhat capricious It is least in the south, where it averages 30 inches, increasing to about 40 inches in the extreme north. In the hills it is considerably heavier, with a mean of about 58 inches, while as much as 75 inches have been recorded. In November, 1899, an extraordinary fall of rain caused great damage, breaching the railway and flooding a large part of Mandalay city; several bridges were swept away, and a village was destroyed with a loss of seven lives. Such storms are frequent at the beginning and end of the rains, though as a rule the havoc they work is inconsiderable.

History and archaeology. The District has from very early times been a part of the kingdom of Burma. The history of the foundation of MANDALAY CITY is contained in a separate article, and the account of the negotiations of the British Government with king Thībaw at Mandalay is given in the article on BURMA. We are concerned here with the settling of the District after the fall of Mandalay in November, 1885. Though about 1,000 troops were quartered in Mandalay itself after the annexation, the District was for some time overrun and practically administered by three or four dacoit leaders, who gave themselves out as acting for the Myingun prince, and who were kept together by a relative of his. Dacoities continued throughout 1886, but in 1887 their perpetrators were hunted down. In August, 1887, a rising took place in the Maymyo subdivision under the Setkya pretender, and the Assistant Commissioner at Maymyo was killed. Two dacoit leaders, Nga To and Nga Yaing, at that time held the islands of the Irrawaddy and made raids right up to the walls of Mandalay; and a third, known as Nga Zeya, occupied the hilly country in the north and north-east of the District. However, these leaders were either driven out of the country or executed in 1888 and 1889, and their gangs were broken up. The last dacoit band, led by Kyaw Zaw, a lieutenant of the Setkya pretender, was dispersed in 1889–90. It had till then harried the Maymyo subdivision and the neighbouring hilly tracts of Kyaukse District.

Pagodas of all sizes are dotted over the plain, crowning the low limestone hills that rise out of it. Some of the most interesting of these lie in or close to Mandalay itself, and are described under MANDALAY CITY. In the Madaya township are the Sutaungbyi and Sutaungya pagodas. The former was built in the eleventh century by king Anawrata on his return from China to commemorate his victories there. The latter was erected by king Mindon in 1874 for the use of the royal family, it is said, lest any among them who aspired to the throne should obtain the fulfilment of their prayers which the more venerable shrine was believed to ensure. At Tawbu in the same township is an old pagoda where a great festival is held in February. An impressive sight is the Shwegyetyet group of shrines, about 600 years old, on the bank of the river at Amarapura. Large crowds assemble annually to witness the feeding of the fish which come up in shoals to be fed at the great Tabaung feast of the Shwezayan pagoda on the Myitnge river, built by Shinmunhla, the queen of Anawrata. The fish are so tame that they are called up by the voice and are fed by hand, pious worshippers decorating their heads with gold-leaf. In the north of the District, 8 miles east of Singu, is the Shwemale pagoda. According to an inscription it was built about 1,000 years ago by king Yamaingsithu, who gave up certain lands to be worked by *payakyuns* (pagoda slaves) and their descendants, the revenue to go to repairs of the pagoda. The receipts are at present spent for the most part on festivals, as may be inferred from the neglected appearance of the shrine.

The people.

Little is known regarding the population under native rule, but it is clear that it was smaller in 1891 than before annexation. In 1891 the inhabitants numbered 375,055, of whom 188,815 belonged to Mandalay City. By 1901 the total had fallen to 366,507, the residents of the city having dwindled to 183,816.

The chief statistics of area and population for 1901 are given in the table on the next page.

The principal town is Mandalay, the head-quarters, and formerly the capital of independent Burma. The attractions of the Burmese court, and the comparative security against dacoities that its presence ensured, were doubtless responsible in pre-annexation days for the existence of a larger population than the District was able economically to support. The waning of the former and the extension of the latter throughout Burma have had the effect of drawing off the surplus not

only from the city, but also from the adjacent townships of Amarapura and Patheingyi. The census figures show that the flow of emigrants has been mostly towards Ma-ubin, Pyapon, and Hanthawaddy Districts, and to Rangoon, which together contain nearly 30,000 persons born in and about Mandalay. The rural population in 1901 was 172,300, rather less than half the total, and the average density in the rural areas was 82 persons per square mile. Buddhists predominate; but in 1901 there were 20,300 Musalmāns, 13,400 Hindus, and 1,000 Sikhs, mostly residents of the city. Burmese is the language of 91 per cent. of the people.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Mandalay City	25	1	...	183,816	7,353	− 3	64,938
Amarapura	85	1	227	43,884	516	−13	9,694
Patheingyi	213	...	152	28,546	134	−10	3,857
Madaya	321	...	217	53,212	166	+ 4	13,443
Singu	712	...	146	35,670	50	− 4	10,251
Pyintha	190	...	54	4,295	23	−13	543
Maymyo	396	1	101	13,730	35	+72	2,230
Wetwin	175	...	37	3,354	19	+19	357
District total	2,117	3	934	366,507	173	− 2	105,313

Race and occupation.

In 1901 Burmans numbered 306,300; Shans (for the most part in the hilly Maymyo subdivision), 5,400; and Danus, a mixture of the last two races, 6,300. Natives of India are numerous. There were 7,900 Indian immigrants in 1891, and this number had increased in 1901 to 15,400, of whom 12,000 lived in Mandalay city. The oldest foreign settlers are the Kathes and Ponnas, a large number of whom are descended from Manipurī prisoners of war. They now number nearly 9,000, and are mostly domiciled in the city and its environs, though the Ponnas have their own villages in the Amarapura township. The percentage of Indian women is exceptionally high, a fact which points to a large permanent Indian colony. Chinamen, for the most part traders and artisans in Mandalay and Maymyo, number 1,600. The European community in 1901 numbered 2,200 (composed largely of the British troops in cantonments). The number of persons directly dependent on agriculture in 1901 was 84,698, or less than half the rural population and a quarter of the total. More than 37,000

persons living in the hills in the north and east are dependent on *taungya* (shifting) cultivation alone.

Christian missions.

Christians in 1901 numbered 4,389, of whom 2,062 were natives (mostly Madrasis). Mandalay city is the see of a Roman Catholic bishop, under whom nine priests are at work in the District, but rather among the Indian Christians than the indigenous folk. The mission possesses thriving schools and an important asylum for lepers. The American Baptists have three pastors at work among the Burmans and natives of India. The Anglican Church is represented by the S.P.G. Mission in Mandalay city, where also the Wesleyan Mission has its head-quarters, and controls a leper asylum.

General agricultural conditions.

Owing to the scanty rainfall, the greater part of the plain is at present uncultivable. Agricultural conditions have, however, been improved by the opening of the new Mandalay Canal, which should eventually result in a considerable expansion of cultivation. The settlement of 1892–3 divided the District into five soil tracts. The first is composed of a thick absorptive clay, commanded by the Shwetachaung Canal, taking off from the Madaya river. The second is a stiff paddy clay or cotton soil, formerly irrigated by the Aungbinle tank, but now by distributaries from the Mandalay Canal. The third is a free and friable kind of sandy loam, and in some places a stiff paddy clay or cotton soil, commanded formerly by the Shwelaung Canal, the place of which has been practically taken by the Mandalay Canal. The fourth is alluvial land inundated during the rains. The fifth consists of rough broken land, composed largely of cotton soil with patches of sandy loam, where cultivation depends entirely upon a timely rainfall. There is very little variety in the systems of cultivation; rice is the chief crop, and the plough and harrow are the main agricultural implements. *Taungya*, or shifting, cultivation prevails in the Maymyo subdivision, though here too a certain amount of irrigated rice is grown in terraced rice-fields in the bottoms of the valleys.

Chief agricultural statistics and principal crops.

About three-fourths of the cultivated land is state land (chiefly *ahmudansa*, or land held on a service tenure). The non-state lands are mostly lands acquired in the latter days of the monarchy by purchase, or presented to junior members of the royal family and others. The table on the next page exhibits the main agricultural statistics for 1903–4, in square miles.

Exclusive of the Maymyo subdivision, for which no statistics exist, 273 square miles were under cultivation in 1890–1, 196 square miles in 1900–1, and 246 square miles in 1903–4.

The increase in the cultivation and a diversion of about 9,000 acres from 'dry' crops to rice are due to the opening of the Mandalay Canal, which has also reduced the area of current fallows by nearly 7,000 acres. The area under rice had risen

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Mandalay City	25	7	2	805
Amarapura .	85	43	12	
Patheingyi .	213	65	29	
Madaya . .	321	81	39	
Singu . .	712	50	18	
Pyintha . .	190	...	...	
Maymyo . .	396	...	...	
Wetwin . .	175	...	...	
Total	2,117	246	100	805

in 1903–4 to 136 square miles, of which 98 were irrigated. Of the total rice crop about 27 square miles were *mayin* or hot-season rice. A large share of this is twice-cropped irrigated land in the Shwetachaung Canal tract. Pulse of various kinds, *pegyi* being the most popular, covers 56 square miles, mainly in the northern or Madaya subdivision. Gram and wheat each occupy about 3,500 acres, chiefly in the Patheingyi township. The areas under both these crops, as well as those under various fodder crops and sesamum, the last covering 14 square miles, have all decreased of late, owing to the land being converted into irrigated paddy-fields. Tobacco is cultivated to the extent of about 3,500 acres in the alluvial deposits on the Irrawaddy islands. Onions, tomatoes, and chillies are grown to a smaller extent. The area under garden cultivation is 16 square miles, including mango groves, nearly 2,000 acres of which clothe the bank of the Myitnge river and areas in the Amarapura township, and 4,600 acres of plantain groves. There are very valuable gardens at Madaya, watered by the Shwetachaung Canal, in which large quantities of coconuts, plantains, betel-vines, pineapples, mangoes, papayas, and custard-apples are grown. Grapes have been tried in Amarapura, and strawberries do well in Maymyo. A certain amount of homestead garden cultivation is attached to every Shan village in the Maymyo subdivision. There is a considerable amount of *bobabaing* or non-state land in the District. In all, 52 estates exceed 100 acres in extent, and one has an area of 670 acres. The average size of a rice or mixed crop holding is $5\frac{1}{2}$ acres, that of other holdings is 2 acres.

The cultivation of tobacco and wheat from imported seed is gradually spreading. Indian wheat and Havana and Virginia tobacco seed have given satisfactory results, producing better crops than the indigenous varieties. The local cultivators seldom avail themselves of the benefits of the Land Improvement and Agriculturists' Loans Acts, preferring to obtain advances from money-lenders, who are less particular as to security, and are quite content with the production of a land revenue receipt. Agricultural improvements.

There are no local breeds of cattle or ponies. Bullocks are used for ploughing very much more commonly than buffaloes. Ponies are brought from the Shan States, as well as from Pakokku and other Districts down the river. The area of reserved grazing-ground exceeds 1,000 acres, and the large uncultivated areas and broad *kazins* or field embankments will render further reservation unnecessary for some time to come. Cattle, ponies, and sheep.

At the time of annexation the District contained several canals of considerable size. The Shwelaung Canal took off from the Madaya river at Zehaung, close to the headworks of the new MANDALAY CANAL, and, crossing the District diagonally for about 30 miles, joined the Irrawaddy at Amarapura. On the foundation of Mandalay, it was directed so as to supply the city moat, but it was never very reliable, and failed absolutely in 1880. The Shwetachaung was 26 miles in length, taking off from the Madaya stream near Madaya, and running south to join the Irrawaddy below Mandalay. From the dam just above Mandalay (below which the canal is empty) to its head it is still navigable by country boats. It is a valuable source of supply, irrigating about 50 square miles. Between these two is the Dinga stream, supplying the Nanda lake north of Mandalay. The present Mandalay Canal takes the place of the Shwelaung Canal and of the Aungbinle and Nanda lakes, which are being converted into paddy-fields. The area annually irrigable by this work is estimated at 80,000 acres, and that irrigable by the Shwetachaung Canal at 28,000 acres; the area actually irrigated in 1903-4 by the former was 30,000 acres, that by the latter 24,000 acres. In the same year 2,300 acres were irrigated from wells, and 1,500 acres from tanks. The total irrigated area of the District in 1903-4 was 100 square miles. More than one-third of this total lies in the Madaya, and more than a quarter in the Patheingyi township. Irrigation.

The fisheries are mainly situated near the Irrawaddy, their success depending upon the nature of the rise and fall of the river. The season begins in October, when the river falls and the outlets of the lagoons and connecting channels are closed Fisheries.

with *yins* (bamboo screens). In the Amarapura township the most important fishery is the Taungthaman lake, which brings in about Rs. 8,000 annually. There are two valuable fisheries in the Madaya township, the larger, the Kyi-in fishery, yielding an annual revenue of about Rs. 9,500. In the Singu township, where the river spreads out over a considerable area in lagoons and backwaters, seven large fisheries realize more than Rs. 5,000 each. In 1903–4 the fisheries yielded a total revenue of 1·2 lakhs.

Forests. The forests are of various types, depending on climatic conditions, which vary considerably in different parts. In the plains the jungle growth consists of open scrub, increasing in height and density as the rainfall increases. The principal species here are *zi* (*Zizyphus Jujuba*) and *kan* (*Carissa Carandas*), overtopped here and there by a *tanaung* (*Acacia leucophlaea*), *nabe* (*Odina Wodier*), or *sit* (*Albizzia procera*). On the lower slopes, facing the plain, the forest is of the type known as 'dry,' in which the principal species are *sha* (*Acacia Catechu*), *dahat* (*Tectona Hamiltoniana*), *than* (*Terminalia Oliveri*), *ingyin* (*Pentacme siamensis*), and *myinwa* (*Dendrocalamus strictus*), or the common bamboo. With increasing rainfall this gradually merges into mixed forest in which teak, *padauk* (*Pterocarpus indicus*), and *pyingado* (*Xylia dolabriformis*) are found. In the north are mixed forests with belts of *indaing* on laterite soil. In these tracts the principal species, besides teak, *padauk*, *pyingado*, and *in* (*Dipterocarpus tuberculatus*), are *thitya* (*Shorea obtusa*), and *thitsī* (*Melanorrhoea usitata*), with various species of *Sterculia* and bamboo. Oaks and chestnuts begin to appear at an elevation of about 2,800 feet, and on the Maymyo plateau these are among the most common species. A small patch of pine forest (*Pinus Khasya*) exists on a hill about 12 miles east of Maymyo. Besides teak, the trees yielding the most valuable timber are *padauk* and *pyingado*; *thitya*, *ingyin*, and *in* are also employed in building. The other trees of economic importance are the *sha*, yielding the cutch of commerce; the *thitsī*, producing a black varnish; and the various species of *Sterculia* (Burmese, *shaw*), the bark of which yields a strong fibre.

The area of 'reserved' forest in 1903–4 was 335 square miles, and that of unclassed forest 470 square miles, principally in the Maymyo subdivision. The only plantations that have been formed are those in the Singu and Lower Madaya Reserves, in which 61 acres had been planted up to the end of 1901 on the teak *taungya* system. The forest revenue in 1903–4 amounted to Rs. 13,000.

The Sagyin Hills near Madaya produce spinels and rubies, plumbago, graphite, and alabaster. Copperas is met with at Kainggyithamin and Yegyi, and lead at Onhlut. Mica has been found at Shwegyin, 9 miles north of Singu, and an inferior kind of coal, of little use for fuel, has been dug near Wetwin on the Mandalay-Lashio railway. Minerals.

Most of the arts and manufactures of the District are carried on in Mandalay and are described in the city article. In Amarapura township the chief industry is that of silk-weaving, in which whole villages are often occupied. The beautiful *acheik tameins* (skirts) come from the Kathe (Manipurī) villages of this township. A little cotton is woven in the rural areas, but only for local use. An important manufacture of Amarapura is that of *kammawa* writing-strips. These measure 18 inches by 2, and are made of four folds of chintz stuck together with black *thitsī* and overlaid with vermilion. They form the material on which *kammawa*, or Buddhist religious texts, are written in Pālī. Arts and manufactures.

About three-fourths of the total population being non-agricultural, a large internal trade is carried on between the city of Mandalay and the District. The through trade is also considerable, imports from the Shan States being shipped for ports down the river in the steamers of the Irrawaddy Flotilla Company, together with the main products of the District, such as hides and skins, grain, and silk goods. These, and the rubies, stick-lac, rubber, and cutch that come from up country, are exchanged for imports, mostly manufactured goods from Rangoon. The latter include hardware, metals, cotton and woollen piece-goods, and general stores from Europe; silks and dyes from Japan and China; and *ngapi* and salted fish from Lower Burma. These are brought by rail and river from Rangoon, and are to some extent re-exported to the Shan States and Western China. The total value of the imports from the Northern Shan States amounted in 1903–4 to $6\frac{1}{2}$ lakhs by caravan and $21\frac{1}{2}$ lakhs by rail. By far the most important commodity brought in is pickled tea (valued at 21 lakhs) from the Hsīpaw and Tawngpeng Hills. The exports to the Northern Shan States were valued in 1903–4 at $5\frac{3}{4}$ lakhs by caravan and $22\frac{1}{2}$ lakhs by rail. They included cotton piece-goods ($7\frac{1}{2}$ lakhs), dried fish ($1\frac{3}{4}$ lakhs), cotton twist and yarn ($2\frac{1}{2}$ lakhs), salt (2 lakhs), and petroleum ($1\frac{1}{3}$ lakhs). Maymyo is a registering station for trade to and from both the Northern and Southern Shan States. The imports from the Southern States in 1903–4 were valued at a lakh, and the exports at a lakh and a half. Commerce and trade.

Trade with Western China along the Maymyo route is registered, but it is very small and shows no signs of increasing.

Means of communication.

The main railway from Rangoon enters the District 10 miles south of Mandalay on the bank of the Myitnge, which it crosses by a fine girder-bridge, and passes through the Amarapura township to the terminus in the city. From Myohaung, 3 miles south of the terminus, there are two branches. One runs westwards through Amarapura to a point on the bank of the Irrawaddy 12 miles from Mandalay, where a ferry connects it with the Sagaing terminus of the line to Myitkyinā. The other turns abruptly eastwards, and after a level run of 16 miles across the plain climbs up the Maymyo plateau, and passing Maymyo, leaves the District near Wetwin about 55 miles from Mandalay. The city will probably before long be connected with Madaya by a light railway.

The District is fairly well provided with roads. Of these, the most important outside municipal limits are the Mandalay-Lashio road, metalled in part, passing through Maymyo and quitting the District at Wetwin; the Mandalay-Madaya road along the Shwetachaung Canal embankment; and the Mandalay-Lamaing road, the two last being each about 16 miles long. These three are maintained by the Public Works department. The District fund is responsible for the up-keep of a considerable number of inter-village tracks, which include the Madaya-Singu road (32 miles), continuing for another 19 miles to the Ruby Mines District boundary, and 3 miles of the metalled road from Mandalay to Amarapura. There is an electric tramway in Mandalay city.

The Irrawaddy is navigable at all seasons by large river steamers, while country boats navigate the Madaya and Myitnge rivers all the year round, the former up to Sagabin, about 20 miles, and the latter for 16 miles, and in the rains for another 30. The Shwetachaung Canal is navigable from the dam just above Mandalay to its head. Government launches ply constantly between Mandalay and other stations on the river; and the Irrawaddy Flotilla Company runs, in addition to various cargo-boats, one mail steamer a week to Bhamo, two to Thabeikkyin (for the Ruby Mines), and two down the river to Rangoon, calling at the various river-side stations, and one daily to Myingyan. The tolls levied on the Shwetachaung Canal and the six ferries that the District contains bring in respectively Rs. 6,000 and Rs. 8,000 a year.

Administrative sub-

The District is divided into five subdivisions: the eastern and western subdivisions of Mandalay city, the former including

the cantonment; the Amarapura subdivision in the south-west, comprising the AMARAPURA and PATHEINGYI townships; the Madaya subdivision in the north, comprising the MADAYA and SINGU townships; and the Maymyo subdivision in the south-east, comprising the PYINTHA, MAYMYO, and WETWIN townships. The subdivisions and townships are under the usual executive officers. The three township officers in the Maymyo subdivision, however, are little more than *myothugyis*, and the *myo-oks* at Wetwin and Pyintha have third-class powers, but cannot take cognizance of cases and never try any. There were 449 village headmen in 1903. The District falls within three Public Works divisions. The greater part forms a portion of the Mandalay division, with head-quarters at Mandalay. Maymyo and its environs form, with the Lashio subdivision, the Maymyo division under an Executive Engineer at Maymyo, and the Mandalay Canal constitutes a third charge. There are two Deputy-Conservators of Forests, one in charge of the dépôt division at Mandalay and one at Maymyo, who in addition to the Mandalay forests has charge of the forests in Kyaukse, Meiktila, and Myingyan Districts, and in the Northern Shan States. At the port of Mandalay are two officers of the Royal Indian Marine, one being Marine Transport Officer for Upper Burma, the other the Superintending Engineer for Government vessels and launches.

divisions and staff.

Civil and criminal justice.

Mandalay is the head-quarters of the Judicial Commissioner, Upper Burma, as well as of the Commissioner of Mandalay, who is Sessions Judge. There is a whole-time District Judge, who is also additional Sessions Judge of the Mandalay Division and Judge of the Mandalay Small Cause Court. In criminal work the Deputy-Commissioner is assisted by the head-quarters Assistant Commissioner (senior magistrate). Violent crime is most prevalent in the Amarapura subdivision, and theft of stray cattle is common in Maymyo. On the whole, however, the crime of the District presents no special features.

Revenue administration.

Under native rule the District was divided administratively into eight parts, one comprising the city and one the islands in the Irrawaddy, while the rest were under salaried officials called *ne-oks*. The actual collection of revenue was done by the *myothugyis* and subordinate *thugyis*, who were paid by a 10 per cent. commission on the revenue collected, and whose office was as a rule hereditary. Appeals lay first to the *Akundaw Tana* (revenue court), and second appeals were allowed to the *Hlutdaw* (High Court); but in cases relating to royal lands appeals lay to the *Leyondaw* (land court), and

thence to the *Hlutdaw*. *Thathameda*, at the average rate of Rs. 10 a household, was assessed by *thamadis*, elders of the village specially appointed for the purpose, but not in the city itself, where instead of the *thathameda*, imposts were levied on goods sold. No land revenue was collected over the greater part of the District on *bobabaing* or non-state lands, unless they were irrigated, in which case a tax of Rs. 2 a *pe* (1·75 acres) was levied. On state lands a rate theoretically equivalent to one-fourth of the gross produce was assessed, but in practice the amount was fixed by custom.

Three attempts at a regular settlement were made in the District soon after annexation; the first two were confined to limited tracts, but in 1891, after a cadastral survey had been completed, a regular settlement of the plain was undertaken. The rates proposed in 1893 were crop rates fixed at one-eighth of the gross produce on state land, and two-thirds of that rate on non-state land. These proposals were, however, revised, and in 1896 new rates on state land were introduced as follows: for *kaukkyi* rice, Rs. 2 to Rs. 7-6-0 per acre; for *mayin* (or hot-season) rice, Rs. 2-4-0 to Rs. 4 per acre. Gardens paid from Rs. 5 to Rs. 25; miscellaneous crops on islands and alluvial lands, Rs. 2-8-0 to Rs. 7-8-0; and *ya*, or upland holdings, Rs. 1-8-0 to Rs. 4 per acre. These changes brought in a revenue of 3 lakhs in 1897-8, as compared with 1½ lakhs realized in the year before their introduction. In 1899-1900 rates were levied on non-state land, the old water rate being abolished, while irrigated lands paid seven-eighths of the state land rate and non-irrigated three-fourths; at the same time the *thathameda* rate was readjusted. The result was a slight increase of revenue. Since 1901 these rates have been resanctioned from year to year, and are still in force, except in the new Mandalay Canal tract, where tentative land revenue and water rates came into force in 1903-4. The rates, however, still require readjustment, especially in the Shwetachaung tract, and settlement operations are now being carried out with a view to their revision. No land revenue is collected in the three townships of the Maymyo subdivision. The table on the next page shows, in thousands of rupees, the fluctuations in the land revenue and total revenue since 1890-1. At present an important item of receipt is *thathameda*, which amounted in 1890-1 to Rs. 2,59,600; in 1900-1 to Rs. 2,59,400; and in 1903-4 to Rs. 2,78,000.

Local and The District fund, administered by the Deputy-Commissioner

for the provision of various local needs, had an income of Rs. 42,600 in 1903–4. The chief item of expenditure was public works (Rs. 40,000). MANDALAY CITY is the only municipality, but Maymyo is administered by a town committee. municipal government.

	1890–1.	1900–1.	1903–4.
Land revenue . .	1,77	4,17	5,64*
Total revenue . .	6,54	13,14	15,21

* Inclusive of Rs. 12,000 collected in Mandalay city.

The District garrison, which is divided between Mandalay and Maymyo, consists of a British battalion, a Gurkha battalion, and two Punjābi regiments, a native mountain battery, and a transport column. The head-quarters of the Burma division, formerly at Rangoon, are now at Maymyo, while Mandalay is the head-quarters of a military district. Army.

The District Superintendent of police is aided by four Assistant Superintendents (one at head-quarters, the others in charge of the two urban subdivisions and the Maymyo subdivision), 6 inspectors, 19 head constables, 68 sergeants, 625 Burman and 335 Indian constables, distributed in 21 police stations and 15 outposts. South of the city are large barracks for the Mandalay military police battalion, the strength of which is one commandant, two assistant commandants, and 1,356 native officers and men. One assistant commandant and 889 men are stationed at Mandalay itself. The only other military police posts in the District are at Maymyo (60 men) and Madaya (25 men). Police and jails.

There is a Central jail in the north-west corner of Fort Dufferin at Mandalay, with accommodation for 1,141 prisoners, who are engaged in gardening, carpentry, smithy and cane-work, carriage-building and repairing, &c. Large orders for furniture for Government offices are carried out by means of prison labour.

The proportion of literate persons in the District in 1901 was 28·7 per cent. (49·9 males, 7·6 females). The total number of pupils under instruction in the District as a whole was 13,773 in 1891, 18,375 in 1901, and 21,720 in 1904. The principal schools are in Mandalay and Maymyo. Education.

It will be found convenient to give separate educational figures for Mandalay city and for the District. Mandalay city contained in 1903–4, 142 special, 22 secondary, 91 primary, and 927 private schools, with 10,710 male and 3,260 female pupils.

These schools were maintained at a total cost of Rs. 96,000, towards which municipal funds contributed Rs. 38,000 and Provincial funds Rs. 16,000. The District, excluding the city, contained in the same year 4 special, 7 secondary, 92 primary, and 749 private schools, with 6,590 male and 1,160 female pupils. These schools are maintained largely from Provincial funds, which provided Rs. 21,000 in 1903-4.

Hospitals and dispensaries. There are four hospitals and a dispensary, with accommodation for 191 in-patients. In 1903 the number of cases treated was 51,508, including 2,987 in-patients, and 1,861 operations were performed. The Mandalay municipal hospital accounted for 2,482 of the in-patients and 17,271 of the out-patients. The total income of these institutions amounted to 1·1 lakhs, towards which the Mandalay municipality contributed Rs. 68,000, the Maymyo town committee Rs. 11,300, and Provincial funds Rs. 21,600. In addition to the hospitals, two institutions for lepers are maintained at Mandalay.

Vaccination. Vaccination is compulsory only within municipal limits and in cantonments. In 1903-4 the number of persons successfully vaccinated was 10,432, representing 28 per 1,000 of population.

[Symes, *Embassy to Ava* (1795); Crawford, *Mission to Ava* (1826); Colonel Yule, *Narrative of the Mission sent to the Court of Ava* (1857); M. Laurie, *Settlement Report* (1894).]

Amarapura Subdivision.—South-western subdivision of Mandalay District, Upper Burma, containing the AMARAPURA and PATHEINGYI townships.

Amarapura Township.—South-western township of Mandalay District, Upper Burma, lying between 21° 47′ and 22° 1′ N. and 96° and 96° 15′ E., with an area of 85 square miles. Its population was 50,707 in 1891, and 43,884 in 1901, distributed in 227 villages and one town, AMARAPURA (population, 9,103), the head-quarters. The density is higher than in any other part of the District except Mandalay city. It contains several Muhammadan villages, and silk-weaving is carried on in all the hamlets in the south. The township is noted for its mango groves along the bank of the Myitnge river. In the south and west the land is low-lying and flooded in the rains, and the lagoons left by the river are planted with *mayin* rice as they dry up. The area cultivated in 1903-4 was 43 square miles, and the land revenue and *thathameda* amounted to Rs. 1,40,000.

Patheingyi.—Township to the east of Mandalay city in Mandalay District, Upper Burma, lying between 21° 51′ and

22° 8′ N. and 96° 3′ and 96° 24′ E., with an area of 213 square miles. Its population was 31,597 in 1891, and 28,546 in 1901, distributed in 152 villages, the head-quarters being at Patheingyi (population, 532), about 6 miles north-east of Mandalay. The western part of the township is irrigated by the Shwetachaung Canal and produces rice; the eastern is high land bearing 'dry' crops. *Mayin* rice is cultivated below the Nanda tank and west of the Shwetachaung Canal, and the centre of the township is now irrigated by the Mandalay Canal. The area cultivated was 65 square miles in 1903–4, but will probably increase largely now that the Mandalay Canal has been completed. The land revenue and *thathameda* amounted to Rs. 2,02,000.

Madaya Subdivision.—Northern subdivision of Mandalay District, Upper Burma, containing the MADAYA and SINGU townships.

Madaya Township.—Central township of Mandalay District, Upper Burma, lying between 22° 1′ and 22° 21′ N. and 96° and 96° 25′ E., with an area of 321 square miles. The population was 51,208 in 1891, and 53,212 in 1901, distributed in 217 villages, the head-quarters being at Madaya (population, 1,545), 15 miles due north of Mandalay, famous for its valuable gardens on the Shwetachaung Canal. The rice lands on this waterway are very fertile, and can in some cases produce three crops a year. The country in the north-east away from the river is parched and uncultivable. The area cultivated in 1903–4 was 81 square miles, and the land revenue and *thathameda* amounted to Rs. 3,20,000.

Singu.—Northernmost township of Mandalay District, Upper Burma, lying between 22° 16′ and 22° 46′ N. and 95° 54′ and 96° 21′ E., with an area of 712 square miles, a large proportion of which is forest. The population was 36,986 in 1891, and 35,670 in 1901, distributed in 146 villages, the head-quarters being at Singu (population, 1,479), on the Irrawaddy, about 40 miles north of Mandalay. The township contains the well-known Sagyin alabaster quarries, and some of the fisheries along the Irrawaddy and its backwaters are very valuable. Only the south of the township is cultivable; the north is hilly and uninhabited. The area cultivated in 1903–4 was 50 square miles, and the land revenue and *thathameda* amounted to Rs. 1,24,000.

Maymyo Subdivision. — South-eastern subdivision of Mandalay District, Upper Burma, containing the PYINTHA, MAYMYO, and WETWIN townships.

Pyintha.—Hill township in the south-east corner of Mandalay District, Upper Burma, lying between 21° 42′ and 21° 57′ N. and 96° 15′ and 96° 32′ E., with an area of 190 square miles, for the most part rugged and jungle-clad. The population was 4,931 in 1891, and 4,295 in 1901, distributed in 54 villages, Pyintha (population, 235), 28 miles from Mandalay on the Lashio road, being the head-quarters. The *thathameda* collections in 1903–4 amounted to Rs. 9,000.

Maymyo Township.—Hill township of Mandalay District, Upper Burma, lying between 21° 48′ and 22° 6′ N. and 96° 24′ and 96° 46′ E., with an area of 396 square miles, composed almost entirely of stretches of undulating scrub-covered upland. The population was 7,993 in 1891, and 13,730 in 1901, distributed in 101 villages and one town, MAYMYO (population, 6,223), the head-quarters. The inhabitants are mostly Danus. The *thathameda* collections in 1903–4 amounted to Rs. 30,000.

Wetwin.—Township of Mandalay District, Upper Burma, lying between 22° 2′ and 22° 21′ N. and 96° 22′ and 96° 42′ E., with an area of 175 square miles. The population was 2,818 in 1891, and 3,354 in 1901, distributed in 37 villages. The head-quarters are at Wetwin (population, 812), on the Lashio railway, 55 miles from Mandalay. The inhabitants of the township, which is hilly and covered with scrub jungle, are for the most part Danus, and the density of population is very low. The *thathameda* collections in 1903–4 amounted to Rs. 5,000.

Amarapura Town.—Head-quarters of the subdivision and township of the same name in Mandalay District, Upper Burma, situated in 21° 54′ N. and 96° 3′ E., on high dry ground on a strip of land between the Irrawaddy and the Taungthaman lake, a sheet of water fed from the river by an inlet to the south of the town. The old city lies to the north of the lake, and very little remains of the fortifications and palaces. There are traces of the wall, a square about a mile each way, and the moat still exists, but rough cultivation covers the sites of the actual buildings. At each corner once stood a pagoda about 100 feet high. The city was founded in 1783 by Bodawpayā, in the place of Sagaing on the opposite side of the river, though a town had existed on the site long before its selection as the capital. Its name imports the 'city of the immortals.' It was at Amarapura that Bodawpayā received the first British embassy under Captain Symes. The town was deserted by Bagyidaw in 1822 in favour of Ava, but

became the capital of his brother Tharrawaddy in 1837, and was finally abandoned by king Mindon in 1857 on the foundation of Mandalay. The town abounds in tamarind-trees, and its fine mango groves are one of its main features. Situated on a neck of comparatively high ground, Amarapura has been connected with its surroundings by a number of brick causeways and wooden bridges, the longest of which, known as the U Bein Tada, stretching across the Taungthaman lake, is about 1,000 yards in length. The pagodas in the neighbourhood are very numerous, the most remarkable being the Patodawgyi pagoda, one of the largest and most handsome shrines in Upper Burma, erected by Bagyidaw in 1818, close to where the Amarapura ferry railway now runs; and the Shinbinkugyi pagoda, built in 1798. Across the Taungthaman lake is another beautiful pagoda, known as the Kyauktawgyi, built by Pagan Min.

The population of the town decreased from 11,004 in 1891 to 9,103 in 1901. The latter figure included 368 Musalmāns (many of them Zairbādis), and 142 Hindus. The chief industries are silk and cotton-spinning, weaving, and dyeing, the weaving of bamboo *wagats* or shingles, and the manufacture of *kammawa* writing-slips, and of shoes and sandals. Fishermen exercise their calling in the Taungthaman lake and other waters; the rest of the inhabitants are cultivators, the wide alluvial plain surrounding the urban area being planted with tobacco, beans, onions, ground-nut, and other crops. The branch line running from Myohaung on the Rangoon-Mandalay railway to the river opposite Sagaing, and connected by ferry with the Myitkyinā line, passes through the town, with stations at Amarapura and Amarapura Shore.

General description.

Mandalay City.—Head-quarters of the District and Division of the same name in Upper Burma, and capital of the Burmese kingdom from 1858 to 1885. The city lies in 21° 59′ N. and 96° 6′ E., and occupies part of a plain, here about 8 miles wide, on the east bank of the Irrawaddy, between the river and the Shan range, the dead level of which is broken only by a hill 954 feet in height. To the south-west of this hill, a mile and a half from the river, are the moat and walls of the old city, nearly 6 miles in circumference. The cantonments include the hill with the old city and a space to the north and east of it, about 6 square miles in all. West and south of the cantonments is the present native city, which stretches to the river on the west, and to the walls of the old fort of Amarapura on the south. The entire area of the munici-

pality and cantonments is 25 square miles, but this includes large unoccupied spaces at the four corners. Religious buildings are scattered over the town, covering with their precincts 2 square miles. The European quarter is on the south of the fort and the business quarter on the west. Masonry buildings are general in the latter, but over the rest of the town the houses are sometimes of wood, more commonly of bamboo. Paddy-fields occupy the country near the river to the north and south; and towards the south-east, where the royal gardens of Mindon once were, is a piece of land now given over to the St. John's Leper Asylum and to rice cultivation. As the city lies below flood level, it is protected by an embankment, which runs all round the municipality and cantonments, and is in some places doubled. A canal, called the Shwetachaung, gives water connexion with Madaya on the north. Along the river bank are some backwaters cut off by the embankments, and gradually filling up.

History. Mandalay dates only from the accession of king Mindon, who is said to have been induced by a dream to abandon for it the old capital of Amarapura, immediately south of the present municipal limits. The walls and moat of the new city and the palace were constructed with paid labour between February, 1857, and May, 1858. Jars full of oil, buried in masonry pits at each of the four corners, are said to have taken the place of the human sacrifices which had once been customary. The whole area to be occupied, both within and without the walls, was laid out in square blocks separated by broad roads, along most of which tamarind and other shade trees were planted. Many of these blocks were occupied in the centre by a high official, whose retainers dwelt along the edges.

Mindon's reign was peaceful, except for an attempt at rebellion by his son the Myingun prince, who in 1866 killed the heir apparent, and eventually fled to Rangoon. Mindon was succeeded in 1878 by his son Thībaw, the history of whose reign is one of palace intrigue varied by massacre. A year after his accession about eighty of his kindred—men, women, and children—were murdered in the palace precincts, and their bodies thrown into a trench. In 1884 occurred a further massacre of about 200 persons, suspected of being concerned in a plot on behalf of the Myingun prince. In 1885 came the rupture with the British; an expeditionary force was dispatched into Upper Burma, and towards the end of November of that year General Prendergast's flotilla appeared off Mandalay. No resistance was offered, and the king received Colonel

Sladen in a summer-house in the palace gardens and formally surrendered himself. For some months after this dacoities and robberies were frequent in and about Mandalay, but the town was eventually reduced to order. About a tenth of the urban area was burnt down during the hot season of 1886, and in August of that year an abnormally high flood burst an embankment built by king Mindon, and caused some loss of property. In 1887 a municipal committee was formed and the metalling of the main roads taken in hand, a telephone system was introduced, and a town survey partly carried out. Before the introduction of municipal government the stockade round the palace and the bamboo houses in the old city were removed, compensation being paid for the sites, and new land being given to the expropriated.

Places of interest. The fort and palace. The old city now forms part of the cantonments, and is known as Fort Dufferin. The walls form a perfect square, with a side a mile and a quarter long. They are built of brick and provided with battlements, the total height being 29 feet. Picturesque watch-houses with many-storeyed roofs rise above them at regular intervals, thirteen on each side, the largest over the gates, which are twelve in number. Outside the walls is a strip of grass land, and beyond this the moat, more than 200 feet across, and bridged opposite the central gate on each side, and also opposite the gates on the south-west and north-east.

In the centre of the square, with roads converging on it from the four main gates, is a platform 11 feet high, 1,000 feet long, and about half as wide, on which the palace is built. It was surrounded in the Burmese kings' time by a brick wall and stockade 2,000 feet square, but these have been removed. Within this space, north and south of the palace, are shady pleasure gardens with lakes and grottoes. The garden on the south contains the summer-house where king Thībaw surrendered. On the east is the bell-tower where the watches were sounded, and north of it the glittering tomb of king Mindon, covered with glass mosaic. Opposite the bell-tower, on the south side of the road, is another tower enshrining a tooth of Buddha; and farther south a small monastery of glass mosaic on the site of an older one, where Thībaw was living in retreat with shaven head and yellow robe, in accordance with Burmese custom, when he was suddenly called to the throne.

The principal throne-room, surmounted by a nine-roofed spire 200 feet high, is near the east end of the platform. In front of it is an open hall 285 feet long. Its golden roof is

supported by gilded teak pillars, some of them 60 feet high. The building was repaired, and the gilding renewed, at a cost of more than a lakh, after Lord Elgin's visit in 1898. The throne is approached through a gate of gilded iron open-work from a flight of steps at the back. To the west is another throne-room in which foreign representatives were received. Next in line to the west is the hall of the body-guard ; a waiting-room for readers and others, with the pages' quarters to the north of it ; another throne-room used for royal marriages ; and a lofty room with an open veranda on two sides that was used by king Mindon as a sleeping-chamber. Thībaw's queens slept in the last room of the series, when not in the royal apartments to the south. On the west of this are sitting-rooms with the usual gilded pillars and roof, and south of them a room from which plays were witnessed. To the east of the entrance hall is a brick building with a tank (now filled in), where the king and queen amused themselves at the annual water-festival by watching the pages and maids-of-honour throw water at each other. On the north of this is the king's treasure chamber and a room where he held informal levées, and on the east the council-chamber where the ministers held their secret deliberations. The *Hlutdaw*, where they met in public for judicial and other business, was to the east of the platform and has been pulled down. Close to the council-chamber is a watch-tower, 78 feet high, exclusive of its decorative roof, from which a fine view is obtainable. On the north side of the platform is a gilded entrance hall similar to that on the south. Both contained thrones, which have been removed. To the west of this hall are the large apartments occupied by Sinbyumashin ('Lady of the White Elephant'), mother of Thībaw's three queens; and here the neglected Supayāgyi, by right the chief queen, was obliged to live in practical confinement. Most of the buildings on the western half of the platform have been demolished ; but the beautiful Lily throne-room, where the wives of officials were received in state twice a year by the king and queen, remains, and till recently was used as part of the Upper Burma Club.

Pagodas, &c. The most important Buddhist shrine in Mandalay is the Payāgyi or Arakan pagoda, 4 miles from the palace and 2 miles south of the Zegyo bazar. Its terraced roof of gilded stucco is of recent construction, the original roof having been burnt in 1884. The building was erected to hold the great brass image of Buddha brought from Arakan by king Bodawpayā after his victorious campaign in 1784. It is said to have been cast by

king Sandathuriya of Arakan, who ascended the throne in A.D. 146. The Gautama is seated on a pedestal 7 feet high, and measures 12 feet 7 inches from the platform to the tip of the *magaik*, or tiara, on his head. The image was dragged over the mountains by Burmese soldiers, and was accompanied by numerous captives of war, who afterwards settled in Mandalay. Long galleries approach the building from each side, partly decorated with paintings—some, on the north side, descriptive of the bringing of the image from Arakan. The galleries are lined with stalls on which gongs, marionettes, and the usual bazar goods are displayed, and are thronged in the cold season, especially during a festival, with a gay crowd of many races. In the court on the north-east is a stone inscription, recording the manner in which the image was brought from Arakan. To the south-east is a large tank filled with turtles, and in the north-west court are two colossal bronze images of good execution, but now dilapidated, also brought from Arakan. On the south-west are 575 stone inscriptions, Burmese, Pāli, and Talaing, the originals of which were collected by king Bodawpayā and copied by his orders. On the east bank of the Shwetachaung Canal, a little to the south of the Zegyo bazar, is the Setkyathiha pagoda, built in 1884 over a brass image even larger than that from Arakan. It was cast by order of king Bagyidaw in 1824, and followed the court from Ava to Amarapura and Mandalay. Close to it on the east is a small pagoda built on the site of her old home by Shinbome, a famous beauty who was the wife of five successive kings.

Across the Shwetachaung is the Eindawya pagoda, built in 1847 by king Pagan on the site of a summer-house used by him when a prince. Being on a spacious platform, from which it rises to a height of 114 feet, it is seen to better advantage than the other pagodas in Mandalay. On the west side is the Mahuya Payā, or 'corundum' image, of black stone, brought by an emissary of king Bagyidaw from Gayā in 1833.

To the west of the fort, between the roads leading from the two gates on that side, is the Shwekyimyin pagoda, built in 1852 over an older one said to have been erected in A.D. 1104, and containing several images of great sanctity, in addition to the great brazen Buddha for which it was built. One of these, the Shwelinbin, represents Gautama standing in royal robes, and has been moved from one capital to another since it was placed in a pagoda of the same name by king Narapadisithu of Pagan (A.D. 1167 to 1204). The Anyathihadaw, which is

kept in a vault near the great image, has been so plastered with gold-leaf by devotees that it is now a mere shapeless lump.

Close by to the north is the Payāni or Red pagoda, so named from the colour of one of its predecessors, built on the site of a shrine erected in 1092. It is interesting chiefly on account of the presence of the Naungdaw and Nyidaw images, dating from the time of Anawrata, which were stolen from Mandalay hill in the troubles following the annexation and, after being stripped of the mass of gold with which they were covered, thrown into the valley, where they were found by a monk and regilded by the town people.

The Yadanamyizu pagoda is beyond the Shwetachaung on the north side of C Road, three-fourths of a mile from the south-west gate. It was built in 1478 by king Mahā Thihathura, and is said to have retained its original shape.

On the north side of the fort, in an unfinished building at the foot of Mandalay hill, is a Buddha 25 feet high, hewn out of a single block of Sagyin marble at the beginning of king Mindon's reign. To the east of it is the Sandamani pagoda, containing an iron image of Buddha cast by king Bodawpayā.

Farther east is the Kuthodaw, the most splendid monument of king Mindon, consisting of a pagoda 100 feet high surrounded by 729 others, in each of which is a marble slab inscribed with a part of the Buddhist scriptures in Burmese and Pālī. Great care was taken to collate the various manuscripts so as to arrive at the most correct version, and the whole stands as a complete official record of the sacred writings.

South of the Kuthodaw are the walls of a vast monastery built by the same king and called the Atumashi, or 'incomparable.' These and a forest of blackened pillars are all that is left of the building, which was burnt in 1892. Just to the east of it is the Shwegyaung, or Golden Monastery, built by Mindon's chief queen after his death with the materials of the house in which he died. The interior is a blaze of gold.

Close to the east gate of the fort is the Taiktaw, a large monastery surrounded by others, all finely carved, which served as the residence of the Thathanabaing, or head of the Buddhist Church, from 1859 to the annexation. The Myadaung monastery, situated on A Road, a mile to the south-west of the fort, is also profusely carved and gilded, though the gilding on the outside is now nearly worn off through exposure to the weather. The builder was Thībaw's favourite queen Supayālat. The Salin monastery, near the racecourse

to the north of the fort, contains what is probably the finest carving in Burma. It was built in 1873 by the Salin princess.

On the highest point of Mandalay hill is a pagoda which once contained the Naungdaw and Nyidaw images referred to above. A little lower, at the southern end of the ridge, stood, until it was burnt in 1892, a great wooden image called Shweyattaw, erected by king Mindon on the foundation of Mandalay. It represented Buddha pointing to the palace as the future site of the capital. Preparations are being made to erect a new figure in place of that burnt.

An interesting morning may be spent on the top of the hill with a good glass. The whole of Mandalay lies at one's feet, and every building of consequence may be identified. Conspicuous to the south-east are the Kuthodaw and the walls of the Incomparable Monastery. Far beyond them to the south, at the edge of a cultivated plain, the white pagodas on Kyaukse hill may be seen, backed by the Shan range. Maymyo lies due east, hidden by several ranges of hills. On the north a conical hill marks the marble quarries of Sagyin, and far beyond are the mountains of the Ruby Mines District. West, across the broad Irrawaddy, the huge mass of brickwork erected by king Bodawpayā at Mingun may be seen, with innumerable white pagodas dotted over the hills southward to Sagaing. On the east bank, opposite Sagaing, the pagodas of the old city of Ava, and farther to the left those of Amarapura, rise above the trees.

Half a mile to the west of the south-west corner of the fort is the main bazar, called the Zegyo. The buildings of this huge mart, which covered 12 acres, were erected under king Mindon, and utterly destroyed by fire in 1897. They have since been replaced by a masonry bazar, costing 8 lakhs, where almost everything obtainable in Mandalay may be bought. The bazar sellers are mostly women; and unmarried Burmese girls of all classes may be seen displaying their good looks as well as their wares, and sharpening their wits in competition with natives of India, against whom they can hold their own much better than their men-folk.

Public buildings.

Within the fort walls are barracks and officers' quarters for one British and two native infantry regiments. The jail is in the north-west corner, and near it Government House overlooks the moat from the north wall. To the north of the fort, skirting Mandalay hill, are the Burma Sappers' lines, and quarters for a mountain battery. To the south, outside the walls, lie the courthouses, municipal office, and circuit-house;

and farther west the hospital, the *dāk*-bungalow, and the railway station. On the west, in the business quarter of the town, are the post and telegraph offices, and the main bazar. There are twelve markets besides the Zegyo within municipal limits, and seventeen police stations and outposts.

Of European religious buildings the chief is the Roman Catholic cathedral, situated in the business quarter. It was completed in 1898, the entire cost being borne by a wealthy Burmese convert. The Society for the Propagation of the Gospel has a church and school, built by king Mindon, across the Shwetachaung in the west; the mission of the English Wesleyans is south of the fort, and that of the American Baptists a mile to the south-west. The St. Joseph's Orphanage, opened in 1904, gives free board and teaching to 150 Chinese boys. The St. John's Leper Asylum, a Roman Catholic institution, was built in 1902 at a cost of 3 lakhs through the energy of the late Father Wehinger. It contains seven wards accommodating 50 patients each, and in 1904 had 323 inmates. The asylum is maintained at a cost of Rs. 34,000 a year. Expenses are met by a Government grant of about Rs. 6,000 a year, contributions from municipal and other Local funds amounting to over Rs. 10,000, and private subscriptions. A little to the west are the wards of the Mission to Lepers in the East, of which the local superintendent is at present a Wesleyan missionary. In 1904 there were 138 inmates in this asylum, besides 11 untainted children of lepers kept separately. The cost of maintenance is Rs. 15,000 yearly, defrayed from a Government grant of Rs. 3,300, municipal and Local fund contributions (Rs. 4,000), the mission fund (Rs. 2,200), and local subscriptions (Rs. 6,000). The mission has been at work in Mandalay since 1890. The city contains over a hundred Buddhist monasteries and schools, and several mosques.

Population.

The population of Mandalay in 1901 was 183,816, a decrease of 4,999 since the first Census taken in 1891. Of this number 166,154 persons were living within municipal limits and 17,662 in cantonments. Half of the decrease was in cantonments, and was due mainly to the reduction of the garrison, the falling off in the city itself being little more than 1 per cent. Of the people living within municipal limits 91 per cent. were returned as speaking Burmese, $4\frac{1}{2}$ per cent. Hindustāni, less than 1 per cent. English, and $3\frac{1}{2}$ per cent. other languages, mostly Indian. A large proportion, however, of the Burmese-speaking people have Indian blood in them. While the

number speaking Indian languages cannot exceed 8 per cent. of the whole, those returning themselves as Muhammadan or Hindu in religion are no less than 13 per cent. of the total population; consequently, it would seem that at least 5 per cent. of the Burmese-speaking people must be partly Indian in race. The proportion is possibly greater, for there are many Buddhists of mixed descent. The Chinese in the District numbered 1,365 males and 211 females in 1901, and probably nearly all these were in Mandalay city. The city has several colonies of Manipurīs and Hindus from Manipur, Assam, and Arakan, brought as captives after the invasions of those countries, and now called indiscriminately Ponnas. They are all of the Hindu religion, and do not as a rule intermarry with Burmans, but their women wear Burmese dress. Of the 9,000 Ponnas enumerated in the District in 1901 the majority were residents of the city. Christians numbered 2,470, or 1½ per cent. of the total population. Roman Catholic missionaries have been established in Upper Burma since the eighteenth century; the Society for the Propagation of the Gospel has had a school in Mandalay from the time of king Mindon; and the American Baptists and English Wesleyans also have churches and schools. Of the cantonment population nearly two-thirds were returned as Burmese.

The census returns show that unskilled labourers and their dependents in 1901 numbered 18,000, religious devotees (monks, &c.) 11,000, and Government servants, including the troops, 9,000. Nearly 8,000 persons were connected with agriculture, and about 10,000 with personal services of various kinds. Of the industries, cotton-weaving ranked first, with close upon 11,000 representatives. Tailors and sempstresses, with their dependents, numbered 10,000. Next came sawyers, carters, and workers or dealers in the precious metals, each with 7,000, sandal-makers with 6,000, and silk-weavers with 5,000. Tanners and lacquerers accounted for more than 2,000, and blacksmiths for a similar number.

Arts and manufactures. The arts and crafts of Mandalay include nearly everything that the Burmese race is capable of producing. The use of machinery is almost unknown; and with the exception of Messrs. Dyer and Company's brewery, and a few rice and timber-mills, almost all the industries are carried on in the home. Among the arts may be included hammered silver-work, wood-carving, iron-work, painting, and a kind of embroidery, called *shwechido*, of gold and silver thread and spangles. The silver-work now consists mostly of bowls with figures in

relief. It is of unequal merit, but good work can be got if demanded. The wood-carving, though the most national of all the arts practised, is in its decadence. The work of the old craftsmen was intended for the open air, where it was exposed to the elements and needed to be effective at a distance. The best work still shows its origin in its bold free lines and vigour of execution. The iron-work chiefly consists of *htis* intended to ornament the tops of pagodas. The painting produced in the city is not of a high order, but the work on silk is in demand among Europeans. The *shwechido* work is the most characteristic of all. It is gorgeous and effective, being used for the palls at the cremation of monks and for the dresses of royal personages on the stage; but it does not last well, nor does it lend itself to fine detail. Equally rich in effect is a rough kind of gold lacquer interspersed with coloured glass, a favourite material for monastic furniture. The ordinary lacquer-work is inferior to that of Pagan, and is used mostly for platters, the designs on which are effective but wanting in variety. The material used is not lac but *thitsī*, the gum of the *Melanorrhoea usitata*. The patterns of the silk *pasos* and *tameins*, including the beautiful *acheik* work, are constantly varying, and the fashions change as quickly as in any European capital. The making of brass and marble images of Buddha can hardly be called an art, as there is no variation in the type. Brass-work is moulded by the *cire-perdu* process. The figure is modelled in wax and encased in a shell of clay. It is next subjected to an intense heat, which expels the wax. The molten brass is then poured in and takes the place of the wax. A pure white marble is obtained from the quarries at Sagyin, 20 miles to the north, and the images made of it, sometimes of great size, are sent all over Burma. Among the minor industries of the city may be mentioned the making of gongs, circular or three-cornered, and the preparation of sacred writings with ornamental lettering on brass or lacquer.

Municipality. A municipal committee was formed in Mandalay in 1887, and has members representing the European, Burmese, Muhammadan, Hindu, and Chinese communities. The principal sources of revenue are the house and land tax, which has risen steadily from 1·6 lakhs in 1888–9 to 2·4 lakhs in 1903–4, and market dues, which yielded 1·4 lakhs in 1888–9, 2·7 lakhs in 1902–3, and 2·1 lakhs in 1903–4. Of this amount the Zegyo bazar contributed 1·5 lakhs in 1902–3, and 1·2 lakhs in 1903–4, the falling off in the latter year being due to a fire in

1903. Slaughter-houses yielded Rs. 44,000 in 1903–4. Other sources of income are the cart tax and toll, which has increased in the last five years from Rs. 23,000 to Rs. 31,000; and the hackney-carriage tax, which has fallen off from Rs. 11,000 to Rs. 9,000. The principal item of expenditure is conservancy, which cost 1·1 lakhs in 1903–4, while Rs. 14,000 was received as conservancy fees. Roads are a varying item of expenditure. The average for the past five years is Rs. 1,30,000, besides Rs. 26,000 for establishment. The maintenance of the hospital costs about Rs. 65,000 yearly, the fees received being about Rs. 5,000. About Rs. 50,000 a year is devoted to education. There is no municipal school, but the Educational department divides the grant among mission and other schools. The lighting of the town costs Rs. 43,000, which amount is just covered by a tax levied for the purpose. The expenditure on general administration rose from Rs. 28,000 in 1899–1900 to Rs. 36,000 in 1903–4, and that on the collection of taxes from Rs. 15,000 to Rs. 19,000. The town survey costs about Rs. 16,000 a year, and the fire brigade Rs. 20,000. Vaccination and registration of births and deaths each cost about Rs. 4,000. Other items are Rs. 20,000 payable to Government to defray the annual cost of the embankment surrounding the town, and grants of Rs. 10,000 to the cantonment fund and Rs. 10,800 to the leper asylums. The total income and expenditure during the ten years ending 1901 averaged 5·4 lakhs. In 1903–4 they were respectively 15 lakhs and 12 lakhs. The incidence of taxation in the city is Rs. 1–8–4, or about 2*s*. per head. Income tax is levied by Government, but not *thathameda*, so that persons with incomes of less than Rs. 1,000 are more lightly taxed than in the villages outside municipal limits. The length of roads within the municipality is 117 miles, of which, however, only 51 are metalled. An electric tramway, opened in 1904, runs along 12 miles of road, and it is proposed to light the city, or part of it, by electricity, in place of oil. Both conservancy and water-supply are capable of great improvement. Night-soil is removed in carts, but only when the houseowner chooses to pay a fee. In the business quarter, however, a tax has been sanctioned. The water-supply is from the moat and river, and from wells. A scheme for sinking new wells at a cost of 3½ lakhs is under consideration. The average death-rate during the five years ending 1903–4 was 38·2, and the birth-rate 40·72 per 1,000. The hospital, which was built in 1891, had 2,482 in-patients in 1903–4, and medicines were

dispensed in over 17,000 cases. In addition to the hospital, there is a dispensary near the Zegyo bazar, at which a somewhat larger number of cases were attended to.

Cantonments. The cantonment fund is chiefly maintained by grants-in-aid from the Government and the municipality, amounting in 1903–4 to Rs. 54,000. These are supplemented by house, conservancy, and other taxes, yielding in all about Rs. 16,000, a sum of Rs. 7,000 from market dues, and other collections amounting to about Rs. 4,000. The chief items of expenditure are conservancy (Rs. 31,000), police (Rs. 17,000), and hospital (Rs. 8,000). There are 26 miles of metalled roads within cantonment limits, maintained from Imperial funds. The Upper Burma Volunteer Rifles, 560 strong, have their headquarters at Mandalay.

Education. Statistics regarding the educational institutions of the city (vernacular and Anglo-vernacular) are given in the District article. Of Anglo-vernacular schools there are eight secondary and three primary. Of these the principal are St. Peter's High school and St. Joseph's (Roman Catholic), the American Baptist Mission high and European schools, the Royal school of the Society for the Propagation of the Gospel, and the high school of the European Wesleyan Mission. Special schools include a survey school and a normal school for teachers.

Maymyo Town.—Principal hill station of Burma, in Mandalay District, situated in 22° 1′ N. and 96° 28′ E., on the Mandalay-Lashio railway, at an elevation of 3,500 feet, and 422 miles by rail from Rangoon. The station occupies an undulating plateau, surrounded by hills covered with thin oak forest and bracken, and enjoys a temperate and, on the whole, a salubrious climate. The clearing of the jungle in the immediate neighbourhood, and the draining of the swamps which used to occupy its low-lying areas, have made Maymyo much healthier than it was when first occupied; but even now it is not free from sickness at the beginning and end of the rains. As regards temperature, the average maxima in May, July, and December are 86°, 77°, and 67°, and occasionally the thermometer reaches 90°. The average minima during the three months mentioned are 66°, 66°, and 38°, but as much as six degrees of frost has been recorded in the winter. The rainfall is comparatively light for a hill station. It averages 58 inches per annum, and is heaviest in May, June, September, and October.

Maymyo (formerly Pyinulwin) was the seat of a *ne-ok* (practically a township officer) under the government of Ava, and

after its occupation by British troops in 1886 frequent operations were necessary to pacify the surrounding country, the last being in 1890. Since that date the town has prospered, the population in 1901 being 6,223 (including 2,016 Hindus and 821 Musalmāns), compared with 1,665 in 1891. The rapid extension of the station has attracted many Chinamen and natives of India, the former chiefly as carpenters and masons, the latter as general traders and coolies. There are now 23 miles of metalled roads, including a portion of the main road from Mandalay to Lashio which passes through the town, and a large number of buildings, public and private, all the more pretentious of which are of brick. The latter include a residence for the Lieutenant-Governor, a circuit-house, the Secretariat, and several *dāk* and inspection bungalows, besides offices for the subdivisional officer and the various officials of the Public Works and Forest departments who have their permanent head-quarters at Maymyo. Maymyo is now the head-quarters of the Lieutenant-General commanding the Burma division. The cantonment extends on both sides of the railway, partly on the high ground at the foot of the hills lying west of the town, where quarters are to be built for a British regiment. The permanent garrison consists of a Gurkha battalion.

The affairs of the town are administered by a committee, the income of which in 1903–4 was Rs. 83,000, devoted largely to conservancy. The cantonment fund had an income of Rs. 5,000 in the same year. A trade registration station is situated on the Mandalay-Lashio road to the east of the town. A reservoir in the hills to the west was completed in 1902, and the town is now supplied with excellent water. An additional reservoir is being constructed. When it is finished, the reserve water-supply will exceed 20 million gallons. Educational institutions include a Government high school, a girls' school supported by the Church of England, and a Roman Catholic school. The civil hospital, a collection of brick buildings built in 1903–4, has accommodation for twenty in-patients. Near the hospital is the bazar, where a market is held once every five days.

Boundaries, configuration, and hill and river systems.

Bhamo District (Burmese, *Bamaw*).—Frontier District in the north of the Mandalay Division of Upper Burma, lying between 23° 37′ and 24° 52′ N. and 96° 34′ and 97° 46′ E., with an area of 4,146 square miles. It is bounded on the north by Myitkyinā District, on the east by the China frontier, on the south by the Shan State of Möngmit, and

on the west by Kathā District. Down the centre of the District from north to south runs the Bhamo plain, about 100 miles long and 25 miles wide, shut in on every side by mountains, once forest-clad, but now sadly marred by the improvident *taungya*-cutter. On the east the uplands extend in a succession of ranges, forming a sea of mountains, and extending far into the great plateau of South-western China, with peaks near the frontier rising to 8,000 feet. On the west the hills bounding the plain are similarly arranged in parallel chains, running north and south and occasionally reaching an altitude of 4,000 feet, until another plain is reached, watered by the Kaukkwe stream running southwards into the Irrawaddy, and the Sitkala running northwards into it, the two rivers bounding the District on the west. The Irrawaddy, flowing down from the north, enters the District in a narrow defile between the two easternmost of these ranges, and debouches on to the Bhamo plain about 28 miles farther down. Here it turns south-east and bends round in one great sweep past the town of Bhamo, to pierce the highlands again about 30 miles lower down, running in another narrow defile to a little way above Shwegu, where it once more spreads out into a wide island-strewn channel, quitting the District after a further course of 30 miles. The two defiles referred to are usually known as the third and second defiles. They are both beautiful, but are unlike in character. The former (the northern one) is wild and rugged; in the dry season the river wanders through a wilderness of fantastic rocks which in the rains break up the water into foaming impassable rapids. The latter is almost as imposing, the hills on the northern side ending in a magnificent wall, rising in one place to about 400 feet sheer out of the water. The river here presents an unruffled surface, sliding between the rocky walls in scenery unsurpassed in its contrast of deep-blue water and luxuriant forest. Above and below these two clefts the river spreads out near Bhamo to a width of 2 miles, containing numerous islands. Into the Irrawaddy on its left bank flow various streams from the north, south, and east, which spread out fanwise and drain the whole Bhamo plain to the east and south of the river. The sources of some of these are more than 100 miles apart, while a distance of only 20 miles separates their points of junction with the Irrawaddy. Proceeding from north to south the first of these rivers is the Mole, which rises in the Chinese hills, and after running a tortuous track southwards and westwards for 100 miles across a now almost deserted plain, empties

itself into the main stream at Hngetpyawdaw about 8 miles above Bhamo. Next below it is the TAPING, an ungovernable waterway which quits the hills at Myothit in the north-east of the District, and flows more or less parallel to the Mole into the Irrawaddy almost immediately above Bhamo. Numerous villages stand on its banks, but its course is described by the people themselves as like that of a drunken man; and some years ago it destroyed nearly all of these hamlets. South of the Taping are shorter streams, flowing more or less westwards—the Nansari and the Thinlin, along whose banks are dotted small Shan-Burmese villages. South of these again is the Moyu; and lastly, flowing in a north-westerly direction to join the Irrawaddy just above the second defile, is the Sinkan, which drains all the southern part of the plain. Deserted paddy-fields on its banks show that they must have been cultivated before the inhabitants were driven out by the Kachins, and it may yet, like the Taping, flow past prosperous villages; but at present the riches of the Sinkan valley lie in its forests. The plain between these several streams is mostly uncultivable, for it is high-lying and cut up in all directions by nullahs, and will long remain under thick tree-jungle or forest. The rivers entering the Irrawaddy on its right bank are less numerous than those on its left. A considerable portion of the western border is marked by the Kaukkwe, flowing southwards into the main stream a few miles west of Shwegu. The only other important waterway on this side is the Mosit, which empties itself into the Irrawaddy a little to the east of Shwegu.

Geology.

A large portion of the District is covered by the alluvium of the Irrawaddy and its tributaries. The mountains on the east are formed of crystalline rocks, gneisses, schists, and crystalline limestones, with intrusive dikes of basic igneous rocks. Patches of Tertiary sandstones occur here and there, surrounded by the alluvium. The country has not yet, however, been examined carefully from a geological point of view.

Botany.

The botany has not been studied as a whole, but the vegetation is rich and the flora varied. Bamboos and canes abound, and in the hills orchids are common. Large stretches of the plain land near the rivers are covered with thick elephant grass.

Fauna.

The elephant, tiger, and *sāmbar* are met with in the wilder parts of the District, while the hog deer and barking-deer abound everywhere. The leopard is ubiquitous, and at the foot of the hills wild hog are common. It is doubtful

whether there are any real wild buffaloes, those met with being probably the progeny of the domestic animal. Snipe are comparatively scarce, but duck can be shot in many places, and partridge and jungle-fowl everywhere.

Climate and temperature.

In the plains the cold-season months are cool, though near the rivers thick mists lie till well into the morning, impeding traffic, and making the air raw and disagreeable. On the hills in January it is very cold, frost occurring occasionally at as low an elevation as 500 feet above the plain. The hot months are close; the mountains shut off the plain from cool breezes in the rains, and towards the end of the monsoon the atmosphere becomes steamy and enervating. The District had a bad reputation for sickness till lately; but the conversion of a number of malarious backwaters in the neighbourhood of Bhamo town into permanent lakes has diminished the prevalence of fever among Europeans. Burmans from the dry zone, however, are still apt to sicken and die during the rainy season. The lowest temperature recorded at Bhamo town was 38° in 1891, and the highest 106° in 1890. The average maximum and minimum are about 87° and 60° respectively. The rainfall is fairly copious and regular. Since 1887 it has averaged about 72 inches per annum.

History and archaeology.

The name of the District (*Banmaw* or *Manmaw*, converted by the Burmans into *Bamaw*) is Shan, and signifies 'the village of pots or potters.' The early history of Bhamo is legendary, but it is clear that at one time a powerful Shan State was more or less conterminous with the present District. It had its capital at Sampenago, the ruins of which are still to be seen at the northern end of the town of Bhamo, and became a Burmese dependency (with the Möngmit State) in the latter part of the sixteenth century. In 1668, according to Mr. Ney Elias, the Sawbwa, Sao Ngawk Hpa, instigated a Chinese attack upon Burma, but failing in his design, fled the country and was replaced by Min Gon, a Burmese general. In 1742 the Sawbwa freed himself from the Burmese yoke. Shortly afterwards, however, the Burmans, after repelling a Chinese invasion, which centred round Bhamo, permanently assumed control and appointed governors; but their hold on Bhamo was loose, and up to the time of the British occupation the *wun* in charge was often to all intents and purposes an independent ruler. A mission sent to inquire into the China-Burma trade, which had almost ceased owing to the Panthay rebellion in Yünnan, led to the appointment of a British Resident at Bhamo in 1869. Though British commerce

benefited but little directly from this arrangement, trade in general increased rapidly, and the Irrawaddy Flotilla Company in 1874 carried 30 lakhs' worth of merchandise to and from Bhamo. On the re-establishment of the authority of the Chinese Government in 1875 a mission under Colonel Horace Browne was sent into Yünnan, by way of Bhamo, but failed to achieve its object, one of the party, Mr. Margary, who went ahead by himself, being murdered at Manwaing beyond the frontier.

The villages on the plains were at this time always being harried by the wild Kachins and Chinese. The Burmese government was quite unable to cope with the situation; and in 1885 a quarrel between the Bhamo *wun* and one Set Kyin, an adventurer who had raised a body of Chinamen to put down a rising in Mogaung, led to an attack by the latter on Bhamo, when he drove out the *wun* and burnt almost the entire town.

The District was occupied by the British without opposition in December, 1885, but considerable difficulty was met with in controlling the Kachins and the outlaws they screened. The Hpunkan Kachins in particular, a tribe settled about 30 miles south-east of Bhamo, were extraordinarily bold, levying tribute in the villages of the Sinkan valley and attacking Sawadi on the Irrawaddy early in 1886. The Bhamo plain was raided more than once during that year, and on one occasion the hill-men effected an entry into Bhamo, killing three sepoys and burning the barracks. The raids continued throughout 1887, but no attempts were made to visit the Kachins in their hills. Early in 1889 a band of Chinese marauders harried the Mole valley, but were dispersed with a loss of fifty men. The Sinkan valley continued to swarm with dacoits, who were assisted by Kachins in the surrounding hills and in Möngmit, and were led by one Hkam Leng. A police attack on this outlaw at Malin was repulsed, and later on a British officer (Lieut. Stoddart) was killed by the gang, which invested Sikaw and for some time occupied Si-u. In the meanwhile the Hpunkan Kachins had again begun to cause trouble, and an expedition under General Wolseley marched through their tract, fined them, and proceeded to Namhkam. In December, 1889, a column was again sent through their country, acting in concert with columns from Möngmit and Hsenwi, but Hkam Leng managed to escape. During 1890–1 an expedition was organized to punish the Kachins settled on the hills east of Bhamo for their frequent raids on caravans; and

in 1891–2 a force was dispatched into the Kaukkwe valley to obtain the submission of the Kachins of the western hill tracts, while a column marched along the whole eastern frontier from Namhkam to Sadon, in the present Myitkyinā District. During the rains of 1892 the Mole valley was disturbed by a pretender, known as the Setkyawadi Min, who was, however, killed before long. A post was established at Namhkam in 1893; and in 1893–4 the District was quiet, except on the hills east of Bhamo, where the Kachins attacked a column and killed three sepoys. The villages concerned were punished, and there have been no serious disturbances since. Myitkyinā District was cut off from Bhamo District in 1895.

In the angle formed by the Taping and Irrawaddy at the extreme north end of Bhamo town are the ruins of the ancient capital of the kingdom, Sampenago, which tradition places as contemporary with the Buddha Gautama. The moat and massive wall can still be traced. It is apparently coeval with the ancient city of Tagaung, farther south on the Irrawaddy. The beautiful pagoda at Shwekyinā, on the left bank of the Taping a little distance north of Sampenago, is attributed to Asoka, as also are the Myazedi pagoda at Hakan, opposite Bhamo town, and the Shwezedi at Bhamo. Ruins of former cities stand near Shwekyinā and at the foot of the Kachin Hills east of Bhamo, while near Myothit are the remains of an old English or Dutch factory presumably built in the eighteenth century. In the Irrawaddy, just above Shwegu, is an island known as the Royal Island, remarkable for the number of religious buildings that have been crowded on it. It is said to have gained its reputation as a place of pilgrimage owing to a vision seen by a Sawbwa of old, which he commemorated in the usual Buddhist fashion, and it is now packed with pagodas and *zayats* (rest-houses). The main shrine is 60 feet in height and contains a curious full-length recumbent Buddha.

The people.

The population of the District in 1891, according to a partial Census, was 41,939. In 1901 it amounted to 79,515. Its distribution in the latter year is shown in the table on the next page.

Bhamo, the head-quarters, is the only town. The average density is low, for the population is confined to the valleys. It must have been even lower in 1891, but the figures of that Census are too meagre to be of any value for purposes of comparison. Buddhism is the prevailing religion, but Animism

is strongly represented. Shan, Burmese, and Kachin are all spoken, and are the vernaculars of three-quarters of the population.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Number of persons able to read and write.
		Towns.	Villages.			
Bhamo	1,723	1	598	57,572	33	5,689
Shwegu	2,423	...	185	21,943	9	4,332
District total	4,146	1	783	79,515	19	10,021

Race and occupation.

About one-third of the population is composed of KACHINS. The actual figure given in the census returns is 25,800; but practically all of the inhabitants of the 'estimated' areas (regarding whom no race data were collected in 1901, and who were computed to be about 1,500 in number) were Kachins, and the total may be taken as 27,000, inhabiting the hilly areas of the District. Burmans numbered 20,300, and Shans 20,900. It should be noted, however, that pure Burmans are to be found only in Bhamo town, and in the Shwegu subdivision along the Irrawaddy, and that pure Shans reside nowhere but in the villages lying east and south of Bhamo along the Sinkan valley. In point of fact, the majority of the non-Kachin population are composed of a mixture of the two races, and should properly be called Shan-Burmans. Along the Taping Valley and in other places are to be found Chinese-Shan settlers from the Chinese provinces of Mengla and Santa; they numbered 1,800 in 1901 and are increasing annually. There are nearly 3,000 pure Chinese, a fair proportion being Cantonese Chinamen who have come through Rangoon to settle and trade in Burma. The total number of immigrants from China numbered 4,100 in 1901, while natives of India numbered 4,200, including sepoys and military policemen. Of the total Indian population 2,300 were Musalmāns, 1,400 Hindus, and 770 Sikhs. Bhamo contains a few Panthays (Chinese Muhammadans), who are engaged in the trans-frontier trade.

Altogether 54,216 persons, or 68 per cent. of the total population, are dependent upon agriculture, including 28,569 who support themselves by *taungya*-cutting; but these figures do not include the population of the 'estimated' areas.

Christian missions.

Native Christians in 1901 numbered 683, of whom 300 were

Baptists and 112 Roman Catholics. The American Baptist Mission started work before the annexation; they have large schools for Kachin boys and girls at Bhamo, where there is also a church and a school for Burmans and Shans. The Roman Catholics have fifteen nominally Christian villages containing ten churches, and have started a secondary school at Nahlaing, a village on the Taping. They work among both Shans and Kachins.

General agricultural conditions.

Cultivation is practically confined to the borders of the streams, and to the hill-slopes where *taungya*-cutting is practised. The Sinkan valley possesses great agricultural possibilities, but it is now but sparsely populated, owing to the depredations of the Kachins. The Mole valley has been similarly denuded of inhabitants, and the river banks are clad with forest and jungle. *Taungya* (shifting) cultivation is confined to the Kachins, who, however, also occasionally work ingeniously irrigated rice areas at the foot of the hills, and in some cases village paddy-fields. In the plains rice is grown in nurseries and transplanted, the ground being prepared by ploughing and harrowing. The fields irrigated by the Taping are frequently destroyed by its sudden floods and shiftings of channel. *Mayin* rice is grown in the backwaters near Bhamo, and along the Taping. Vegetables are to be found in nearly all Shan villages; but the river banks and islands are not ordinarily planted with tobacco, as is the case elsewhere in Burma, only a little being grown on the right bank of the Irrawaddy. Plantains are plentiful, and English vegetables and fruits, notably strawberries, are successfully cultivated in Bhamo. Vegetables also thrive well in the experimental garden at Sinlumkabā started in 1897.

Chief agricultural statistics and principal crops.

The main agricultural statistics for 1903-4 are shown below, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Bhamo	1,723	23	...	4,000
Shwegu	2,423	12	6	
Total	4,146	35	6	4,000

Out of the total area cultivated in 1903-4 (exclusive of the very extensive *taungya* cultivation), 32 square miles were under rice, including 2,000 acres of *mayin*. Gardens, which are practically all plantains, covered 1,600 acres, almost all being in the Bhamo township. *Kaing* (alluvial) crops are hardly grown at all, and tobacco only covers 180 acres. A coffee plantation (60 acres) is situated close to Bhamo.

Various species of non-indigenous fruit trees have been tried in the District, but otherwise very little has been done in the way of introducing new varieties of produce. Agricultural loans to the extent of Rs. 6,000 were advanced in 1903-4. Improvements in agricultural practice.

Buffaloes, locally bred, are much more used by the people of Bhamo than kine. There are, in fact, less than 600 bullocks altogether in the whole District, and most of these are used for draught purposes only. A few goats are kept by natives of India. Ponies are brought in by the caravans from China and the Shan States, most of them for the Rangoon market, and sheep are imported to a small extent from China. Cattle, &c.

No large irrigation works have been constructed. Attempts have been made to regulate the course of the Taping, but they have not met with success. More than 3,600 acres in the Shwegu township are irrigated by small canals, branching from the rivers and carried sometimes for a considerable distance. The fisheries of the District have not yet been surveyed. They are let for the year to lessees, who generally sublet their rights over small areas for a few rupees a year. The fisheries are commonest in the Shwegu subdivision, the largest being the Indaw, opposite to Shwegu. This is a chain of lakes 7 square miles in extent, fed by a single narrow inlet, through which the fish crowd at the first rise of the river. Preparations for closing the inlet begin in October or November. *Yins*, or screens of split bamboos lashed on to a frame of jungle-wood, are stretched across the channel, and large quantities of fish are caught in their attempt to leave the fishery when the river falls. The remnant left in the lakes are then taken in nets and traps, or rendered more or less unconscious by the fishermen, who poison the water with a root known as *mahaga* and capture their victims on the surface. The fishery revenue amounted in 1903-4 to Rs. 28,000. Irrigation and fisheries.

Forest lands are estimated to cover about 4,000 square miles, but only 311 square miles of this total are 'reserved' at present, and there are no protected forests. Unfortunately two-thirds at least of the area is adversely affected by the Kachin system of cultivation, the wasteful *taungya*. The loss due to *taungya*-cutting in the Kachin tracts is incalculable from the forest revenue point of view. The timber that comes from the forests in the north of the District is floated down to a revenue station at Shwegu, where it is examined and measured, while that extracted below Shwegu is taken to a station farther Forests.

south. The forests are of various kinds: swamp, tropical, hill, dry, and mixed. A peculiar feature of the mixed forests is the disappearance in this latitude of the *pyingado* (*Xylia dolabriformis*) and the *kokko* (*Albizzia Lebbek*). Among many species that are met with are the *thabye* (*Eugenia sp.*), the *shaw* (*Sterculia sp.*), the *thadi* (*Bursera serrata*), the *taukgyan* and *thitsein* (*Terminalia sp.*), the *pyinma* (*Lagerstroemia Flos Reginae*), the *thitkado* (*Cedrela Toona*), the *kanyinbyu* (*Dipterocarpus alatus*), the *kanyinni* (*Dipterocarpus laevis*), and several species of *Ficus*. In the *indaing* forests the *ingyin* (*Pentacme siamensis*) and common *in* (*Dipterocarpus tuberculatus*) are frequent. *Ingyin* timber leaves the District in large quantities. Teak is found in all the principal forests and is exported freely. During the twelve years ending 1902-3 about 110,000 logs were extracted, of which 38,000 came from the Mosit drainage, and more than 20,000 each from the Sinkan and Kaukkwe drainage areas. Many kinds of bamboos and canes are exported in considerable quantities, and the revenue from this source averages Rs. 15,000 annually. Other items of minor forest produce are *shaw* fibre and the *thin* reed, from which Danubyu mats are made. The total forest receipts amounted in 1903-4 to Rs. 7,45,000.

Minerals.

At present no minerals are found in sufficient quantity to be of commercial importance. Gold occurs in the form of fine grains and leaflets in recent deposits of the Irrawaddy, and in a much-decomposed gneiss in the neighbourhood of Myothit; and rubies and spinels, probably derived from the crystalline limestones, have been discovered in the river gravels. The Burma Gold-Dredging Company holds the right of dredging for gold in the bed of the Irrawaddy, from the confluence above Myitkyinā to the mouth of the Taping river.

Arts and manufactures.

The District is not noted for any particular industrial product. Cotton-weaving is carried on as a subsidiary occupation. Silver-work and iron-work are produced in fair quantities; the former is also imported from the Shan States, and is often of excellent design. Pottery, somewhat archaic in pattern, is made at Shwegu. The cotton-weaving carried on by the Kachins is of special interest. The articles made are for domestic use only, and are woven from imported yarn or from a home-grown cotton of pure white colour and glossy texture.

Commerce and trade.

Bhamo has been a commercial centre of some importance for years. Two trade routes to China converge on it, one from Tengyüeh via Manwaing and Myothit, and one from

Namhkam; and it is the northern terminus of the Irrawaddy Flotilla Company, which has sent steamers up to the town since 1869. Bhamo once had a rival in the now practically unknown village of Kaungton, at the entrance of the second defile of the Irrawaddy; but the caravans had to take what routes were open to them, and to modify them according to the vicissitudes of the petty wars that continued till the British occupation. After that date what trade would have gone to Kaungton and did actually go for some years to Sawadi, 9 miles below Bhamo, became diverted to Bhamo by the improvements in the Bhamo-Namhkam road. Consequently all the China-Burma trade coming into the District now passes through Bhamo. This trade, rudely disturbed by the Panthay rebellion, recovered but slightly on the re-establishment of the Chinese Imperial power in 1874, and owing to the *likin* oppressions of the Chinese authorities and the raids of the Kachins the traders have till recently undertaken heavy risks; so that, although the British occupation has stopped the latter and the establishment of customs stations in Chinese territory has been an attempt to introduce some kind of system into the former, business through Bhamo shows no signs of increasing largely in the immediate future. It is hoped, however, that the rebate of seven-eighths of the maritime customs duty on goods imported and re-exported to China will improve the frontier trade prospects. For the convenience of this re-export trade, a bonded warehouse has been built at Bhamo.

The principal overland imports from China into Bhamo, with their values in 1903-4, are as follow: raw silk (3¾ lakhs), orpiment (2 lakhs), ponies and mules (1½ lakhs), other animals (1¼ lakhs), and hides (1 lakh). The value of specie imported amounted in 1903-4 to 14¼ lakhs, and the total value of imports of all kinds was 23¼ lakhs. Of this aggregate only Rs. 13,000 worth came via Myothit, and the rest passed over the Namhkam route. The main exports to China, with their values in 1903-4, are as follow: Indian twist and yarn (24¼ lakhs), raw cotton (3 lakhs), European piece-goods (1¼ lakhs), specie (2¼ lakhs), a total value of 34¾ lakhs, of which only Rs. 9,000 pertain to the Myothit route. The balance of trade is to some extent made up by smuggled opium.

Considerable trade is carried on with the Northern Shan States and with the Kachin tracts, as well as with China, the values of the principal imports and exports in 1903-4 being

as follow: imports, ponies and mules (Rs. 17,000), rice (Rs. 31,000), gram and pulse (Rs. 35,000), hides (Rs. 53,000), specie (4 lakhs), total 5¾ lakhs; exports, salt (Rs. 87,000), Indian twist and yarn (Rs. 1,21,000), European piece-goods (Rs. 74,000), total 5 lakhs.

Bhamo itself is only a place of transhipment; there are no merchants of any standing, and their agents merely see that goods pass from Mandalay and Rangoon to China and vice versa. The imports from China go down by the river steamers and large native boats, which bring up the goods for re-export.

Means of communication.

The Irrawaddy is navigable by large steamers to the mouth of the Taping, 2 miles above Bhamo, and by smaller steamers in the cold season up through the District to Myitkyinā. Two weekly steamers ply weekly to Mandalay and other stations, and a daily steamer runs 70 miles to the railway terminus at Kathā. The Taping is navigable by country boats at all times, and in the rains by large launches up to Myothit, where the river debouches from the gorge. The Mole also is navigable by large boats up to near Nalong, five days' journey from Bhamo, but navigation is rendered difficult by snags and sharp bends of the stream. The Kaukkwe can be used by country boats as far as Myitkyinā District in the rains, and the Sinkan up to Sikaw, 20 miles from its mouth. The District is well provided with roads. East of the river four main tracks radiate from Bhamo town, the first via Myothit, where the Taping river is crossed by a bamboo bridge in the open season and by a ferry in the rains, to Nalong in the upper Mole valley, close to the junction of Bhamo and Myitkyinā Districts with Chinese territory. The second, the main road to Tengyüeh (Momein), the principal Chinese frontier customs station, strikes eastwards across the plain to the foot of the hills, and thence along the south bank of the Taping river to the Chinese frontier near Kalihka (51 miles). The first 17½ miles are metalled; the remainder is a mule-track, graded so that it can be opened for carts in due course. The third main road is the Namhkam road, south-eastwards to the Northern Shan States. As far as Mansi (13 miles) it is opened for carts; thence to Panghkam (39 miles), close to the Northern Shan States border, it is a mule-track over the hills. It is freely used by caravans from the Northern Shan States and the neighbouring Chinese Shan States. The fourth road runs via Sikaw to Si-u on the Möngmit border. It is a cart-road as far south as Sikaw (37 miles);

thence to Si-u (18 miles) along the valley of the Sinkan stream it is only open for carts in the dry season. Along the whole frontier from Nalong to Panghkam a mule-track has been constructed connecting the frontier posts, and crossing the Taping river between Nampaung and Kalongkha by an iron suspension bridge with masonry abutments, which was constructed during the open season of 1904. These roads are maintained mainly from Provincial funds. In addition, numerous inter-village tracks are kept up by the District fund, including cart-roads in the Shwegu subdivision, both east and west of the Irrawaddy, and mule-tracks in the Kachin hills. During the rainy season, the smaller streams in the hills, and floods in the low country, frequently render all but the main banked roads impassable for traffic. The construction of a light railway from Bhamo to Tengyüeh is at present under consideration. Its estimated cost is about 176 lakhs, and it will practically follow the road now under construction along the Taping valley.

District subdivisions and staff.

For purposes of administration the District is divided into two subdivisions, BHAMO and SHWEGU, each conterminous with a single township. Under the two subdivisional officers are 215 village headmen. The hill areas of the two subdivisions are administered by civil officers in accordance with the provisions of the Kachin Hill Tribes Regulation, 1895. The civil officer in charge of the Bhamo subdivision hill tracts has his head-quarters at Sinlumkabā, 26 miles east of Bhamo. The subdivisional police officer, Shwegu, is civil officer for the Kachin hill tracts of that subdivision, with head-quarters at Shwegu. Bhamo is the head-quarters of the Bhamo Forest division and of the Bhamo military police battalion. The Public Works department is represented by an Executive Engineer in charge of the Bhamo division, which is conterminous with the District.

Civil justice and crime.

The two township officers are judges in their respective courts, and the *akunwun* at Bhamo is additional judge of the Bhamo township court. The Deputy-Commissioner, besides being District Magistrate and District Judge, has the powers of a Sessions court for the trial of crimes committed in the Kachin hill tracts, and the Commissioner confirms death sentences in such cases. The civil officers administer criminal justice according to the Kachin Hill Tribes Regulation, and decide all civil cases within their jurisdictions. There are two additional magistrates in Bhamo, the *akunwun* and the treasury officer. Crime is extremely light; violent crime is almost unknown, but excise

and opium cases are fairly numerous. The Shan-Burmans, who inhabit the greater part of the District, are peculiarly law-abiding, and compare very favourably in this respect with the pure Burmans.

Revenue administration.

Under Burmese rule the main source of revenue was *thathameda*, supplemented by a tax on state rice lands and on fisheries. Tolls were levied on imports and various commodities, and on boats according to their capacity. At present the revenue is raised differently in the plains and in the Kachin hill tracts. In the latter, the civil officers personally collect the revenue while on tour with an escort in the open season. This revenue consists only of tribute, in the form of a house tax at Rs. 2–8–0 per house. In the plains the greater part of the revenue is made up of *thathameda*, the assessment varying from a maximum of Rs. 10 in the accessible parts of the District to Rs. 5 and Rs. 2–8–0 in the remoter areas. The District has never been settled, and only a fraction of the rice land has been surveyed, on which a uniform rate of Rs. 1–8–0 per acre is levied. On unsurveyed lands a tax on the out-turn is collected, its amount being regulated by the Deputy-Commissioner according to the market price of rice. The following table shows the fluctuations in the revenue since 1890–1 :—

	1890–1.	1900–1.	1903–4.
Land revenue . .	12*	20	27
Total revenue . .	1,91*	1,39	1,53

* Including revenue of Myitkyinā.

Land revenue is a comparatively small item in Bhamo. *Thathameda* is the main source of revenue. It brought in Rs. 96,000 in 1900–1, and a little over a lakh in 1903–4 (including the tribute from the Kachin hill tracts).

Local and municipal government.

BHAMO is the only municipality. The District fund is administered by the Deputy-Commissioner. Its income in 1903–4 amounted to Rs. 10,500, the chief object of expenditure being public works (Rs. 6,300).

Army.

Bhamo has been a military station since 1885. The garrison occupies Fort C, on the highest ground in the town. At present it consists of three companies of a British regiment, a battalion of native infantry, and a mountain battery. The frontier outposts are manned by the military police.

Police and jails.

Besides the District Superintendent of police, two Assistant Superintendents are in charge of the subdivisions. The force

consists of one inspector (at head-quarters), 5 head constables, 8 sergeants, and 180 constables, including 49 village police. There are 2 police stations and 12 outposts. Bhamo is the head-quarters of the Bhamo battalion of military police. Of this force, 768 (including all ranks) are stationed at Bhamo itself, in Fort A on the bank of the river. The remainder of the military police garrison, numbering 475 of all ranks, occupy five frontier outposts, Alawpum and Nampaung north of the Taping, and Warabum, Lwejebum, and Panghkam south of that river, as well as posts at Sinlumkabā and Shwegu. These outposts are in heliographic communication with each other and, directly or indirectly, with Bhamo, and are connected by a frontier road. There are five British officers, one of whom has his head-quarters at Sinlumkabā.

The District jail at Bhamo has accommodation for 97 prisoners, who find occupation in grinding wheat for the military police and in doing cane and bamboo work.

Education. In 1901 the proportion of literate persons was returned at 22 per cent. in the case of males and 2½ per cent. in the case of females, or 12½ per cent. for both sexes together. The figures do not, however, include the population of the 'estimated' areas, the great majority of whom are unable to read and write. Bhamo possesses a number of schools belonging to missionary agencies. The American Baptist Kachin Mission has opened a school in Bhamo for boys and girls, teaching up to the eighth standard, and has ten other schools in the District. The same Agency's mission to Burmans and Shans has a school with primary and middle departments, and the Roman Catholics have started teaching in the Christian village of Mahlaing on the Taping. A Government Anglo-Chinese school at Bhamo has more than 30 scholars. In 1903–4 the District contained 5 advanced schools (private), 70 primary, and 73 elementary (private, and mostly monastic) schools, with a total attendance of 2,634 boys and 309 girls. The expenditure on education was Rs. 12,400, of which Rs. 10,300 was met from Provincial funds and Rs. 2,100 from fees.

Hospitals and dispensaries. The two civil hospitals have accommodation for 59 in-patients. In 1903 the number of cases treated was 16,506, including 950 in-patients, and 241 operations were performed. The total income was made up of Rs. 4,500 from Provincial funds, Rs. 3,600 from municipal funds, and Rs. 600 from subscriptions. About 4,817 patients attended the military police hospitals at Sinlumkabā, Warabum, Panghkam, and Lwejebum during the same year.

Vaccination. In 1903-4 the number of persons successfully vaccinated was 2,306, representing 29 per 1,000 of population. Vaccination is compulsory only within the limits of the Bhamo municipality.

[J. Anderson, *Report on Expedition to Western Yunnan, via Bhamo* (1871); E. B. Sladen, *Narrative of the Expedition to explore the Trade Routes to China via Bhamo* (1869).]

Bhamo Subdivision.—Eastern subdivision and township of Bhamo District, Upper Burma, lying between 23° 46′ and 24° 52′ N. and 97° 1′ and 97° 46′ E., with an area of 1,723 square miles. The population in 1901 was 57,572, of whom about 21,000 were Kachins, nearly 8,000 Burmans, and about 20,000 Shans or Shan-Chinese. There are 598 villages, including very small groups of huts in the Kachin tracts; and the head-quarters are at BHAMO town (population, 10,734), while the civil officer in charge of the Kachin hill tracts has his head-quarters at Sinlumkabā, a station in the hills 26 miles east of Bhamo and 6,000 feet above the sea. The township is nearly all covered with forest, cultivation being confined to the ground near the rivers, and to the shifting *taungyas* on the hill-slopes, which occupy two-thirds of the township, north and east. Approximately 23 square miles were cultivated in 1903-4, and the land revenue and *thathameda* amounted to Rs. 86,000.

Shwegu.—Western subdivision and township of Bhamo District, Upper Burma, lying between 23° 37′ and 24° 50′ N. and 96° 34′ and 97° 16′ E., with an area of 2,423 square miles. The population in 1901 was 21,943, Kachins numbering about 5,300, Shans about 3,800, and Burmans over 12,500. The subdivision contains 185 villages, the head-quarters being at Shwegu (population, 2,493), a long straggling collection of villages on the high left bank of the Irrawaddy, a regular calling-place for the Flotilla steamers. Valuable forests are found in the township, and ample room for extension of cultivation exists in the almost-deserted Sinkan valley. The Kachin areas lie in the east of the township north and south of the Irrawaddy. The area cultivated in 1903-4 was 12 square miles, and the land revenue and *thathameda* amounted to Rs. 45,000.

Bhamo Town.—Head-quarters of the District of the same name in Upper Burma, situated in 24° 15′ N. and 97° 15′ E., on the left bank of the Irrawaddy, 687 miles from the sea. The town extends along the edge of the river for nearly 4 miles, the ground behind it being so intersected with deep

nullahs that the urban area cannot spread inland, and has now reached its limits. The Shan quarter lies to the south, stretching for 2½ miles from beyond the steamer *ghāt* in the south to the much higher ground on which the other part of the town is built. The houses are all ranged on two long roads parallel to the river, and behind is the *maidān*, a polo ground in the cold season and a fishery during the rains, when it is covered 15 to 20 feet deep by the Irrawaddy. The greater part of the Shan quarter is liable to inundation, the river rushing to flood the *maidān* over the narrow isthmus on which it is built. The higher ground extends along the river bank for about a mile and a half. On its southern edge, running east from the river, are built the hospital and the District, postal, and telegraph offices. Along the river is the quaint Chinese quarter, with its houses overhanging the swirling stream beneath. Behind, separated by a deep nullah, is the bazar and another nullah, along the eastern edge of which is the civil station. North of the Chinese quarter stretches the Burmese village, up to the military police barracks (or Fort A), which, with the jail, mark the end of the high ground, the bank farther north being low-lying and in places liable to floods. The cantonment is built behind the *maidān* at its north-east corner, and is connected with the station by a high embankment. The barracks are all within the walls of Fort C. On the China Road, running eastwards from the bazar, are the police station and the ugly white Shwezedi pagoda, where an annual festival is held at the close of the Buddhist Lent.

The malarious backwaters that gave Bhamo such an unenviable reputation for fever have of late been converted into lakes or drained altogether. The main streets are metalled, and the steamer *ghāt* at the southern end of the town is now connected with the bazar and civil station by the Viceroy's Road, skirting the western side of the *maidān*. A metalled track takes off from the China Road and, bending round towards the military police lines, makes a circular road about 5 miles in length.

Bhamo has long been the gate of the Chinese trade, and as early as the fifteenth century we find it on an old map made by Fra Mauro from the wanderings of Nicolò di Conti. From the first it has been an important commercial centre, but its business has declined a great deal during the past century. Prior to annexation it was the head-quarters of a *wun* appointed by the Burmese government, and was then a stockaded town. It was occupied without opposition by the British in December, 1885. The population, including that of the

cantonment, was 8,048 in 1891 and 10,734 in 1901; the latter total included 1,971 Musalmāns and 1,087 Hindus, about 2,000 Shans, and 3,700 Burmans and Shan-Burmans. The inhabitants are chiefly petty rice-traders, workers in silver or precious stones, and small shopkeepers.

Bhamo was constituted a municipality in 1888. During the ten years ending 1901 the income and expenditure of the municipal fund averaged about Rs. 25,000. In 1903–4 the income was Rs. 34,000, of which Rs. 12,600 was derived from dues on markets and slaughter-houses, and Rs. 3,900 from house and land tax; and the expenditure was Rs. 33,000, the chief items being conservancy (Rs. 11,500), hospitals (Rs. 6,200), and lighting (Rs. 3,600). The cantonment fund had a revenue of Rs. 6,200 in 1903–4, the chief source of income being grazing fees (Rs. 2,500). The municipality supports the civil hospital, which has accommodation for 51 in-patients. The work of the civil hospital is supplemented by that of the dispensary belonging to the American Baptist Mission.

Boundaries, configuration, and hill and river systems.

Myitkyinā District.—District in the Mandalay Division of Upper Burma, the northernmost of the Province, lying between 24° 37′ and 27° 20′ N. and 96° 0′ and 98° 20′ E., with an area of 10,640 square miles. Only the lower portion of the District is 'administered'; over the upper portion, a tract of unexplored country about the head-waters of the Chindwin and Irrawaddy, comprising the Hukawng valley, Hkamti Long, and what is known as the Sana tract, no direct administrative control is at present exercised. The 'administered' area is bounded on the north-east by the Kumpi range of hills, which forms the northern watershed of the Shingaw valley; on the north by the N'maikha down to the confluence where that stream joins with the Malikha to form the Irrawaddy, and thence by a geographical line running east and west at 25° 45′ N. On the north-west it is bounded by the Hukawng valley; on the west it is separated from the Upper Chindwin District by a geographical line running north and south at 96° E., and by the Namsang stream; and on the south its borders march with Kathā and Bhamo Districts. The eastern boundary abuts on Yünnan. At its northern extremity, the dividing line between the District and China is formed by the watershed between the drainage of the Irrawaddy on the one hand and of the Shweli and Taping on the other; farther south it follows the course of two streams, the Tabak flowing south and the Paknoi flowing north, which unite to form the Nantabet, an eastern

tributary of the Irrawaddy, while about 5 miles south of Simā in the south-east of the District the border-line again takes the watershed between the Irrawaddy and the Taping, till Bhamo District is reached.

With the exception of the actual basins of its main streams, Myitkyinā is mountainous throughout. The eastern Kachin Hills run down southwards from Tibet, and extend along the whole eastern border of the District, their breadth from the foot to the crest (the Chinese boundary) being 30 to 35 miles, and their heights varying from 3,000 to 7,000 feet, but rising in places to peaks as high as 11,000 feet. On the western side of the broad Irrawaddy plain is the Kumon range, which stretches from the Hkamti country east of Assam southwards to the latitude of Kamaing (25° 30′ N.), terminating near Mogaung in the Shwedaunggyi peak (5,750 feet). On its northern slopes the Chindwin, locally known as the Tanai, is supposed to have its source. South of Mogaung and the end of the Kumon range, from which they are separated by the valley of the Mogaung river, start the Kaukkwe Hills, in about 25° 10′ N. They run southwards in two diverging lines; through the eastern branch, which skirts the Irrawaddy, that river forces its way and forms the third or upper defile; the western spur separates the Kaukkwe valley from the Nanyin valley, which the Sagaing-Myitkyinā railway follows, and is continued into Kathā District. Other ranges deserving of mention are the Loipyet, which separates the Nanyin and Indaw streams, starting at Kamaing; and the hilly country which includes the Jade Mines tract, dividing the Uyu valley from the valleys of the Upper Mogaung and the Indaw. All this mass of upland is thickly clothed with jungle, and the scenery is in places magnificent.

Nearly the whole of the District lies within the basin of the Irrawaddy; but while on the east the country rises, with but a small break here and there, from the river to the hills on the Chinese frontier, and is drained by short direct tributaries, that part of the District lying on the west of the Irrawaddy, nearly three-quarters of the whole, drains by numerous streams into one large tributary, the Mogaung river, and is characterized by several valleys possessing great possibilities of cultivation. The Irrawaddy, formed by the confluence of the Malikha and N'maikha streams in 25° 45′ N., flows in a southerly course across the District, somewhat nearer to its eastern than its western border. Above Sinbo in the south of the District the country on either side is a luxuriant plain, but at Sinbo the

river enters the third or upper defile. The scenery here is wild and picturesque; the river in the rains becomes a foaming mass of dull white: in one place, known as 'the Gates,' the stream is pent up in a rocky channel, only 50 yards wide, formed by two projecting rocks below which are two huge whirlpools. In flood-time this obstruction stops navigation of any kind, and launches can negotiate it only in the dry season. The Irrawaddy's most important tributary in the District is the Mogaung river (or Nam Kawng), which rises beyond the 'administrative' border in the north, and flows past Kamaing and Mogaung in a general south-easterly direction, entering the main river about 15 miles north of Sinbo. At Kamaing it is joined by the Indaw, which runs a north-easterly course from the Indawgyi Lake; and at Mogaung by the Nanyin (or Nam Yang), which comes with the railway from Kathā District also in a north-easterly direction. The only tributary of any importance on the left bank of the Irrawaddy is the Nantabet, which rises on the Chinese border and flows due west into the main river about half-way between Myitkyinā and Sinbo.

The Indawgyi Lake, the largest in Burma, lies between 25° 5′ and 25° 20′ N. and 96° 18′ and 96° 23′ E., near the south-west corner of the District, and has an area of nearly 80 square miles. It is surrounded on three sides by ranges of hills, but has an outlet, the Indaw river, on the north. The lake abounds in fish and the valley is fertile; but it is only beginning to recover from the devastation caused by the Kachin rising in 1883.

Geology. The hill ranges consist of metamorphic and crystalline rocks, on which Eocene and Miocene trap have been deposited. Limestone, sandstone, clays, and ferruginous conglomerates are met with. The soil in the plains near the Irrawaddy is alluvial clay and loam, and is very fertile. The jade, amber, and other mines found in the older formations are referred to below.

Botany. The vegetation is luxuriant, but, except for forest purposes, has not been exhaustively studied. Covering a considerable range of altitude, it must of necessity be varied. Much of the plain land consists of stretches of elephant grass, and bamboos are very abundant.

Fauna. The District possesses a varied and numerous fauna, including the elephant, rhinoceros, tiger, leopard, bear (Tibetan and Malayan), bison (*Bos gaurus*), *tsine* or *hsaing* (*Bos sondaicus*), *sāmbar*, hog deer, barking-deer, serow (called by

Burmans the jungle goat), wild hog, wild dog, jungle cat, monkeys (including the gibbon), and the porcupine.

Climate, temperature, and rainfall.

The climate of Myitkyinā from December to March is pleasant. It is very cold at times, but along the Irrawaddy and other valleys the mornings at this season are spoilt by heavy fogs, which do not lift till 9 or 10 o'clock. The rains are heavy, and from June till October the climate cannot be said to be healthy, malarial fever being prevalent even in the towns. The mean maximum temperature from November to the end of February is about 73°, and the mean minimum temperature during the same period about 56°, the averages for the rest of the year being about 88° and 71° respectively. No official register of temperature is kept. The annual rainfall of the last eight years, as registered at Myitkyinā, averaged 75 inches, and at Mogaung 80 inches.

History.

The part of the District lying west of the Irrawaddy and the plain on the east of the river once formed the old Shan principality of Möngkawng (Mogaung). In Ney Elias's *History of the Shans* we are informed that this region was in early ages inhabited by a people called Nora, who were considerably more civilized than their neighbours, and had a reputation as a learned class. Of these people Francis Buchanan Hamilton states that they called themselves Tai Long (or Great Shans) and spoke a dialect little different from that of Siam; and it is a fact that at the present day the Siamese understand the vernacular spoken in this neighbourhood better than the more adjacent Tai dialects of the Southern Shan States. The first Sawbwa of Möngkawng, according to the chronicle, was Sam Long Hpa (1215), who made extensive conquests in all directions, and ruled over territory stretching from Hkamti Long to Shwebo, and extending into the country of the Nāgās and Mishmis. Until 1557 the principality was more or less under Chinese influence; but in that year it was invaded by an expedition from Pegu, and thereafter was subject to Burma or independent, according to the strength of the reigning monarch, till it was finally subjugated in 1796 and governed by *wuns* sent from the court of Ava. The Shans broke out into rebellion early in the nineteenth century, and the important walled town of Waingmaw, just below Myitkyinā on the left bank of the Irrawaddy, was destroyed by a Burmese expedition from Bhamo in 1810. The final blow to the dependency came from the Kachins, who began to press down from the north about fifty or sixty years ago. The Shans gradually became exhausted, and in 1883 a rebellion fostered

by a man named Haw Saing, who professed to be the re-incarnation of a legendary Shan prince, established Kachin predominance. This rising started with the devastation of the Indawgyi valley, and culminated in the capture of Mogaung. The rebels were dispersed; but, as in Bhamo District, the Burmese government was incapable of protecting its Shan subjects, who continued for several years to pay tribute to the local Kachin chiefs (*duwas*) in return for freedom from molestation, the amount varying from several buffaloes to a handful of salt. This was the state of Myitkyinā when it passed into the hands of the British as a portion of Bhamo District. In February, 1886, the Deputy-Commissioner of Bhamo received the submission of the local officials at Mogaung; but great difficulties were met with in the administration of the country. The first *myo-ok* was assassinated only two months after his arrival; the Burmese officer appointed in his place declined to stay at Mogaung unless supported by troops; and his successor, one Po Saw by name, fled rather than meet the expedition sent up there in 1887, and thereafter became openly rebellious. He instigated the Lepai Kachins to oppose the column from Bhamo that had come to appoint his successor, and attacked Mogaung, but without success. In 1887 Mogaung was strongly stockaded, and made the head-quarters of the Mogaung subdivision of Bhamo District. Po Saw made another attack on it in 1888, and caused some loss to the garrison. In 1888–9 four punitive expeditions were dispatched under the direction of Sir George White against the surrounding Kachin tribes, which accomplished their end with little loss, a post being established at Kamaing on the Mogaung river. In 1891 the Myitkyinā subdivision was formed. In 1890–1 four columns were dispatched to bring the Kachins west of the river under direct control, one of which visited the Hukawng valley and the amber and jade mines, and met a column from Assam. Two of the expeditions sent to subdue the Kachins east of the Irrawaddy in 1891–2 encountered very considerable difficulties. One column captured the hill village of Sadon in the north-east of the District, and went on to explore the banks of the N'maikha; in its absence the post at Sadon was besieged by the Kachins, and had to be relieved by a column which had been operating in the neighbourhood of Simā, south-east of Myitkyinā town. In 1892–3 a military police column concentrated at Talawgyi, a village due south of Myitkyinā on the eastern bank of the Irrawaddy, and after some opposition established a post at

Simā. On the very day Simā was reached Myitkyinā was suddenly raided by the Sana Kachins, a tribe living beyond the 'administrative' limit. The subdivisional officer's court-house was burnt, and the *sūbahdār*-major of the Mogaung levy was shot dead. Meanwhile the Kachins had enveloped Simā; and Captain Morton, the commander of the expedition, was mortally wounded while withdrawing a picket, and was with difficulty conveyed inside the fort by Surgeon-Major Lloyd, who afterwards received the Victoria Cross for his gallantry. Military police were then dispatched from Myitkyinā, and a column which had been working south of the Taping was sent up northwards to create a diversion; but it was not until 1,200 rifles had been called up and considerable fighting (involving the death of several European officers) had occurred, that the Kachins were finally scattered at Palap, south of Simā. After the formation of Myitkyinā District in 1895 an expedition was sent to punish the Sana Kachins for their raid on Myitkyinā, and twenty-four villages were heavily fined. The last fighting was in 1899–1900, when an expedition sent to explore the country east of the N'maikha was cut off by a force of Chinese, who lost 70 killed and many wounded before they gave way.

Nearly one-third of the population inhabiting the Kachin Hills in the east were only 'estimated' in 1901, owing to the impossibility of obtaining reliable supervision in that remote and backward area. The population of the District was returned as 51,021 in 1891 and as 67,399 in 1901. Its distribution in the latter year is shown in the following table:— The people.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Number of persons able to read and write.
		Towns.	Villages.			
Mogaung	3,490	...	226	18,867	5	2,738
Kamaing	2,650	...	126	9,687	4	1,904
Myitkyinā	4,500	1	582	38,845*	9	3,367
District total	10,640	1	934	67,399	6	8,009

* Made up of 17,560 in the regularly enumerated and 21,285 in the 'estimated' areas.

Though the enumeration of 1901 was admittedly partial, it seems clear that there has been a substantial increase in the population during the previous decade. There is a certain amount of immigration from China (including both Chinamen

and Shan-Chinese), and to a smaller extent from the Shan States also. There were rather more Buddhists than Animists in the areas regularly dealt with in 1901, but in the District as a whole Animists are in the majority. Kachin is the principal language, and Shan is more spoken than Burmese.

Race and occupation.

The most numerous indigenous race is that of the KACHINS, who form rather more than half the total population. They inhabit the hills on both sides of the Irrawaddy over all the northern and north-eastern parts of the District. The Lisaws, Szis, Lashis, and Marus are practically all residents of the 'estimated' areas, and their numbers are not precisely known. Shans numbered 17,300 in 1901, including Shan-Chinese, who possess about a dozen villages. They are found for the most part in the Myitkyinā plain. The Burmans numbered only 6,600, living in the river valley, mostly in Shan villages. The total of Chinamen was 3,600, most of them traders in and near the towns of Mogaung and Myitkyinā. A tribe peculiar to the District is the Hpons, who inhabit the third defile and a few villages north of it in the Mankin valley, and are indispensable to the keeping open of the river during the rains. They resemble the ordinary Shan-Burmans in dress and features, and appear to have been returned as such in 1901; but they have their own dialect, now dying out, and worship only the one great *nat* of the hills. Natives of India numbered about 5,000 in 1901, nearly four-fifths of whom were Hindus. The great part of this alien population is composed of military police and other Government and railway employés. There are, however, a certain number of Indian traders in Myitkyinā town. Assuming that practically all the inhabitants of the 'estimated' areas were cultivators, about 52,700 people were dependent directly on agriculture in 1901, or 78 per cent. of the total population. Of the total more than 30,000 were probably supported by *taungya* (shifting) cultivation alone.

Christian missions.

The last enumeration showed a total of 161 Christians in the District, of whom 116 were natives. The American Baptist Mission has a representative at Myitkyinā and has opened a Kachin boys' school.

General agricultural conditions.

With respect to agriculture, the District may be divided into two portions: the level valley lands on the banks of the Irrawaddy and its tributaries, and the hills. In both regions the staple crop is rice, but there is a difference in the method in which it is grown. The best rice lands are those in the valley of the Nanyin, and, generally speaking, the soil in the river basins is extremely fertile, and, the rainfall being sufficient,

rice is very easily grown; indeed the ground will produce almost anything, as has been proved by the natives of India who live at Myitkyinā. Rice is grown in the plains in the usual manner, that is, in embanked fields. Another less common method of cultivation, which is also practised in the lowlands, consists in cutting down the jungle, firing it, ploughing the ashes into the soil, and then sowing the seed broadcast. Fields cultivated in this manner are known as *lebok*. A plot of land thus dealt with cannot be worked for more than two years, after which it lies fallow for some six or seven. *Taungya* is practised in the hills. In the case of cultivation of this kind, a hill-side is selected, the jungle on it is cut and burnt, and when the rains begin the rice seed is dibbled into the ground, the crop being reaped in the cold season. It is a method confined to the hills, as its name signifies. *Taungya* land is cropped only twice as a rule, and is left fallow for 9 or 10 years subsequently.

Chief agricultural statistics and principal crops.

The following table exhibits, in square miles, the main agricultural statistics of the District for 1903-4. The area cultivated excludes *taungya* cultivation, which is the most prevalent form.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Mogaung .	3,490	6	0·5	6,130
Kamaing .	2,650	1	...	
Myitkyinā .	4,500	16	4·5	
Total	10,640	23	5	6,130

Rice covers the greater part of the cultivated area. A little tobacco is grown on the alluvium close to the river banks, and potatoes and gram have been tried successfully by natives of India at Myitkyinā. On the hills, in addition to rice, crops of cotton, sesamum, and millet are produced, as well as opium for local consumption, and a little tea is grown in some of the hill villages on the west bank of the Irrawaddy.

Improvements in agricultural practice.

The area under cultivation is steadily increasing, but, as the District has not yet been cadastrally surveyed, estimates made of the expansion are of little value. The growth is most noticeable in the Nanyin valley, near the railway line, and in the region round the Indawgyi Lake. Of new products, Havana tobacco and Mocha coffee have been introduced into the District. The former has proved successful, but it is still too soon to pass any opinion on the prospects of the latter. Peach-trees thrive in the Government experimental garden

at Myitkyinā, and yearly produce good crops; but apples, plums, pears, and nectarines, all of which are being tried, have as yet yielded no results. A few years ago the agriculturists showed no disposition to take loans from Government, but this feeling has died out, and there is now no prejudice against this form of assistance. The loans made by the state are devoted for the most part to the purchase of plough cattle, and are recovered with little or no trouble. The amount lent during the seven years ending 1905 averaged about Rs. 6,000 annually.

Cattle, &c. There is no peculiarity about the local breeds of cattle. The beast most in favour for agricultural purposes is the buffalo. Large numbers of cows are, however, bred for milch purposes by natives of India living at Myitkyinā, Mogaung, Kamaing, Waingmaw, and Hopin. Practically no ponies and only a few goats are kept, but sheep are imported during the dry season from China. A large number of mules are brought in from China in the open season for hire as transport animals, but there is no mule-breeding within the District. No grazing-grounds have been regularly defined. Fortunately, however, owing to the heavy rainfall and the scant dimensions of the cultivation, lack of fodder is unknown.

Irrigation. Very little land is irrigated in the District, the small weirs at Sinbo, Katcho, Waingmaw, Hopin, and other villages each supplying only a few acres. The total area returned as under irrigation in 1903–4 was 5 square miles, nearly all of which consists of rice lands in the Irrawaddy valley. The weir on the Nanlon stream near Waingmaw was built by Government in 1899 at a cost of Rs. 11,000. The Indawgyi Lake abounds with fish, but no other fisheries are of any importance.

Forests. Myitkyinā possesses both hill and plain forests. The forests of the plains are much mixed with elephant grass, and in the drier portions the characteristic trees are *Dipterocarpus tuberculatus* and species of *Shorea*, *Butea*, &c., while by far the commonest tree in the moister portions is the silk-cotton tree (*Bombax malabaricum*). The northern limit of teak is here reached, and very few trees are found north of Myitkyinā station. A consequence of this is that where teak occurs it does not ascend the hills to any considerable height, but is found chiefly just along their bases. The finest teak areas are near the Indawgyi Lake. Though a considerable quantity of india-rubber (*Ficus elastica*) nominally comes from Myitkyinā, it is in reality all collected beyond the 'administrative' border and imported. The area under 'reserved'

forests is 130 square miles, and the forest receipts in 1903–4 were $1\frac{3}{4}$ lakhs. With the exception of india-rubber, the trade in which has shrunk to very small proportions within the last two years, there are no minor forest products of importance.

The principal minerals are jade, mined in the north-west of the District; gold, found in the Irrawaddy; rubies, extracted at Nanyaseik, 13 miles above Kamaing on the Nanya stream; and corundum at Manwe, on the Indaw stream. Beyond the 'administrative' border there are amber-mines. Minerals.

Jade is worked in quarries near Tawmaw and Hweka, close to the Upper Chindwin District, and in river-mines at Mamon on the Uyu *chaung*. The quarries at Tawmaw have produced immense quantities of the stone, but it does not approach in quality that obtained in boulders in the river banks or at the bottom of the stream. For the Burmese and Chinese market valuable jade has to satisfy rigid conditions of colour, transparency, brilliancy, and hardness. The Tawmaw stone, which is of a particular shade of dark green, satisfies the first condition, but fails in regard to the other three. The method of working the quarries is primitive. The first fracture being brought about by the application of artificial heat followed by cold at night, crowbars are driven in and large blocks are obtained, which are broken up into a shape and size suitable for transport, either on mules to Kamaing or on bamboo rafts down the Uyu to Kindat. An *ad valorem* duty of $33\frac{1}{3}$ per cent. on the output is collected at Mogaung and Kindat. This duty averaged Rs. 50,000 during the last three years, the out-turn of jade in 1903 being 1,340 cwt., valued at Rs. 1,22,000.

The ruby tract at Nanyaseik is worked after a primitive fashion by Government licensees. The miners dig in shallow pits scattered over a wide area, as the ruby-bearing soil (*byon*) occurs in pockets. The revenue from this source fluctuates very considerably, depressions following prosperous periods from time to time. It reached Rs. 33,000 in 1895–6, but dropped to Rs. 80 in 1902–3. The tract is now practically deserted.

The amber-mines are situated beyond the 'administrative' frontier in the Hukawng valley near the village of Maingkwan. The shafts dug for its extraction are only wide enough for a man to descend and ascend by steps, and are seldom more than 40 feet in depth. As with jade, amber is found in pockets, and a cluster of pits always shows the existence of such a pocket. The product, unlike jade, is only bought by the Burmans, and is by them used for the manufacture

of trinkets and beads. The corundum mines at Manwe are worked in a similar manner, but are of little value. Gold-washing is fitfully carried on in the Irrawaddy by Shans, Chinese, and Burmans. A steam dredger has been at work since 1902 above Myitkyinā dredging for gold, and the venture shows promise of success.

Arts and manufactures. There are no arts or manufactures worthy of mention. The Kachin women weave a strong cloth, and every Kachin makes his own rice-liquor (*cheroo*); but both weaving and brewing are on a very small scale, and neither the cloth nor the liquor is intended for other than home consumption.

Commerce and trade. The import trade is entirely in the hands of natives of India and Chinese, the articles imported by railway from Lower Burma and Mandalay being salt, piece-goods, hardware, yarn, crockery, and matches for the Myitkyinā and Mogaung bazars, which are the two principal distributing centres for those commodities. From Yünnan the Chinese bring in fruit, poultry, sheep, and manufactured articles, which for the most part take the form of pots and pans, umbrellas, rugs, and clothing. The exports are jade, amber, and india-rubber from the Hukawng valley, and teak-wood. The jade goes mostly to China and the other articles to Lower Burma. The traffic in jade and rubber is chiefly in the hands of Chinese, who visit the jade-mines yearly in large numbers; the timber trade is managed by an English firm. The total value of the imports from Western China in 1903–4, over what are known as the Waingmaw and Kazu routes, was about 1¼ lakhs, the corresponding figure for exports being about a lakh. Between the Kachins in the hills and the Shans in the plains there is some traffic in liquor, opium, salt, and sesamum; but the instinct of the Kachins is not commercial, and at present there seems little prospect of an expansion of trade in this direction. Maingna and Waingmaw, east of the Irrawaddy, and Myitkyinā, Mogaung, and Kamaing, west of the Irrawaddy, are the chief emporia of what Kachin trade there is. Owing to difficulty of transport, trade with China is not likely to increase in the immediate future.

Means of communication. Of communications the most noteworthy is the railway, which runs diagonally across the greater part of the centre of the District from the south-west, and, passing through Mogaung, has its terminus at Myitkyinā. Next to the railway in importance comes the Irrawaddy, which is navigable all the year round by boats and small steamers between Watugyi and Simbo. Other waterways are, however, useful.

The Mogaung stream can be used at all seasons by boats as far north as Laban, and during the rains by launches up to Kamaing; the Indaw Lake and *chaung* are both navigable throughout the year by country boats; and small country craft can ply on the Nantabet at all times of the year as far as Kazu.

The principal land communications are: the road from Waingmaw to Sadon and thence to China by two alternative routes, the first through Wawchon and the Kowlaing pass and the second by way of the Sansi gorge; and the road from Waingmaw to Simā and thence by Palap to Simā-Pa in China. Graded mule-tracks have been made by the Public Works department to Sadon and Simā, the distance being 41 and 42 miles respectively; and other Government roads connect Maingna with Kwitu, a distance of 14 miles, Mogaung with Kamaing (27 miles), Kamaing with Nanyaseik (13 miles), Hopin on the railway line with Lonton on the Indawgyi Lake (28 miles), and Pungatong on the Sadon-Waingmaw road with Loingu on the N'maikha (18 miles). All these roads are partly bridged, but are unmetalled, and are maintained from Provincial funds. Rough mule-tracks connect Sadon with Simā and Simā with Nahpaw, and are cleared of jungle yearly by civil officers, the cost being met from Provincial funds. The tracks maintained from the District fund are: from Mogaung to Tapaw, 6 miles; from Mogaung to Koywa, 5 miles; and from Kamaing to Namlik village, 21 miles. Several ferries cross the Irrawaddy, the most important of which connects Myitkyinā with the eastern bank.

District subdivisions and staff.

For the purposes of administration the District is divided into two subdivisions: the MYITKYINĀ subdivision and township; and the Mogaung subdivision, comprising the MOGAUNG and KAMAING townships. The Kachin Hills are administered under the Kachin Hill Tribes Regulation of 1895. In the Myitkyinā township there are three civil officers' charges, the Sadon, Simā, and Myitkyinā hill tracts. The first two are under special civil officers stationed at Sadon and Simā, the last is in charge of the subdivisional police officer at Myitkyinā. The hills west of the Irrawaddy are administered by the subdivisional officer of Mogaung and the township officer of Kamaing as civil officers. At the District head-quarters are the *akunwun* in subordinate charge of the revenue, and the treasury officer. Myitkyinā is the head-quarters of the Executive Engineer in charge of the Myitkyinā Public Works division, comprising the Myitkyinā, Sadon, and Kathā sub-

divisions; and of the Deputy-Conservator of Forests in charge of the Myitkyinā division, which, except for a small area in the west, is conterminous with the District.

Civil justice and crime.

There are no special civil judges. The subdivisional and township officers do all the civil work in their respective courts. Petty civil cases in the Kachin hill tracts are settled by the *duwas* or headmen. Under the Kachin Hill Tribes Regulation of 1895 the Deputy-Commissioner is vested with the powers of a Sessions Judge in cases arising in these tracts, the Commissioner confirming death sentences. The *duwas* are also allowed to settle petty criminal cases according to tribal custom. As in Bhamo District, the smuggling of opium from China and the Kachin Hills is very common, and the District is never wholly free from crimes of violence committed by the Kachins.

Revenue administration.

The revenue is made up of the *thathameda* tax, which is paid by the non-Kachin population at the rate of Rs. 10 per household; the tribute levied from Kachins at the rate of Rs. 5 per house in the tracts under the civil officers of Mogaung and Kamaing, and at a lower rate elsewhere; land revenue paid by all cultivated lands in the plains; royalty on minerals; and revenue from stamps, excise, and fisheries. Nearly all the land is state land, the revenue payable being the value of one-tenth of the gross produce (as fixed by the township officer with the aid of assessors), except on lands given out on lease, on which a rate of Rs. 1-8-0 per acre is levied, these being the only surveyed lands in the District.

The growth of the revenue since the formation of the District is shown in the following table, in thousands of rupees:—

	1895-6.	1900-1.	1903-4.
Land revenue . .	...	8	20
Total revenue . .	1,53	1,80	1,88

The *thathameda*, which is at present the main source of revenue, increased from Rs. 46,000 in 1900-1 to Rs. 73,000 in 1903-4.

Local funds.

The income of the District fund, which is derived chiefly from bazars and ferries, was Rs. 18,000 in 1903-4. No municipalities have been constituted.

Police and jails.

Under the District Superintendent of police are 2 Assistant Superintendents in charge of the subdivisions, an inspector, 4 head constables, and 96 men. There are 4 civil police stations and an outpost, while at Lonton, Sinbo, Sadon, and

Simā there are village police. The District is garrisoned by a strong force of military police, consisting of 9 British officers, 41 native officers, and 1,612 rank and file. Of these 947 are stationed at Myitkyinā; and posts are held at Mogaung, Kamaing, Fort Harrison (Sadon), Fort Morton (Simā), and Wayabu on the N'maikha, at each of which is an assistant commandant, also at Nahpaw (in the cold season), Lapye, Maingmaw, Lonton, N'pum Bum, Sinbo, and Palawgyi. There is no jail, prisoners being sent to Kathā when sentenced to imprisonment for a term exceeding one month.

Education. The proportion of persons able to read and write was shown in 1901 as 28 per cent. in the case of males and 2 per cent. in the case of females, or 17 per cent. for both sexes together. These figures, however, leave out of consideration the population of the 'estimated' tracts, where the number of literate persons must have been infinitesimal. A school for Kachin children is maintained by the American Baptist Mission, but most of the schools are monastic, and in the hill areas even the elementary teaching of the *pongyi kyaung* is absent. In 1904 the institutions included one secondary, 21 primary, and 61 elementary (private) schools, with an attendance of 1,188 pupils (including 90 girls), as compared with 1,164 in 1901. The expenditure on education in 1903–4 was Rs. 1,600, derived wholly from Provincial funds.

Hospitals. There are 6 hospitals, with accommodation for 67 in-patients. In 1903 the number of cases treated was 20,054, including 795 in-patients, and 300 operations were performed. The total expenditure of Rs. 26,000 is derived almost wholly from Provincial funds. A number of patients were treated in the hospitals at the different military police outposts.

Vaccination. In 1903–4 the number of persons successfully vaccinated was 772, representing 11 per 1,000 of population.

[I. Errol Gray, *Diary of a Journey to the Bor Khamti Country and Sources of the Irrawaddy* (1893); Prince Henry of Orleans, *Du Tonkin aux Indes* (Paris, 1898.)]

Mogaung Subdivision.—Subdivision of Myitkyinā District, Upper Burma, consisting of the MOGAUNG and KAMAING townships.

Mogaung Township.—Western township of Myitkyinā District, Upper Burma, lying between 24° 42′ and 25° 45′ N. and 96° 0′ and 96° 16′ E., with an area of 3,490 square miles. The population in 1901 was 18,867, Shans numbering more than 8,000 and Kachins more than 7,000, while Burmans and Burmese Shans to the number of 2,000 inhabited Mogaung

itself, and some of the larger river villages. The township contains 226 villages, of which 172 are in the Kachin Hill Tracts. The head-quarters are at Mogaung (population, 2,742), a market of importance situated on the Mogaung stream and the railway, about 30 miles west of Myitkyinā. Except in the immediate neighbourhood of Mogaung, the township is a mass of forest-clad upland and the density of population is very low. In 1903–4 the area cultivated was 6 square miles, in addition to *taungyas*, and the land revenue and *thathameda* amounted to Rs. 42,000.

Kamaing.—North-western township of Myitkyinā District, Upper Burma, lying between 25° 30′ and 26° N. and 96° and 97° E., with an area of 2,650 square miles. The population in 1901 was only 9,687, half of whom were Kachins, a fourth Shans, and one-sixth Burmans. It contains 126 villages, of which all but five are in the Kachin Hill Tracts. Kamaing (population, 1,079), where there is a strong military police post, is the head-quarters. In 1903–4 the area cultivated was 600 acres, apart from *taungyas*, but the greater part of the township is forest. The land revenue and *thathameda* amounted to Rs. 5,000.

Myitkyinā Subdivision.—Eastern subdivision and township of Myitkyinā District, Upper Burma, lying between 24° 37′ and 25° 45′ N. and 96° 42′ and 98° 20′ E., with an area of 4,500 square miles. It comprises the Irrawaddy valley, here of considerable width, and the hills up to the Chinese frontier. Within its geographical limits are the three Kachin Hill Tracts, administered under the Kachin Hill Tribes Regulation by civil officers with head-quarters at Sadon in the north-east, Simā in the south-east, and MYITKYINĀ, the head-quarters of the District and township (population, 3,618). The population of the township, excluding the first two of these tracts, was 17,560 in 1901; that of the Sadon tract being 14,012, and that of the Simā tract 7,273. The Myitkyinā Hill Tract was not formed till 1904. In the plains, Shans, Burmans, and Kachins are represented in the ratios of 7, 3, and 1 approximately; elsewhere the inhabitants are practically all Kachins. In 1901 the subdivision contained 582 villages, of which 477 were in the Kachin Hill Tracts as then constituted. In 1903–4 the area cultivated was 16 square miles, in addition to *taungyas*. The land revenue and *thathameda* amounted to Rs. 46,000.

Myitkyinā Town.—Head-quarters of the District of the same name in Upper Burma, situated in 25° 23′ N. and 97° 24′ E., on a level plain surrounded by hills on the western bank of the

Irrawaddy, and at the terminus of the Sagaing-Myitkyinā railway, 724 miles from Rangoon. Population (1901), 3,618. The station has risen to importance only since the British occupation. Prior to 1892 it was a small Shan-Burmese village, its name denoting the fact that it was near to the banks of the great river, the Irrawaddy; and even now the military police and the officials form more than a quarter of the inhabitants. The town was attacked by a party of Sana Kachins in December, 1892, when the military police *sūbahdār*-major was killed and the subdivisional officer's courthouse and residence were burnt; but since then its history has not been marked by any stirring incidents. Myitkyinā is increasing in importance as an exchange for Chinese traders, who bring large quantities of opium, and take away india-rubber and jade and foreign commodities brought up by rail. Details of the frontier trade, which converges almost entirely at Myitkyinā, are given in the District article. The town contains a bazar and the usual public buildings.

Hkamti Long.—A collection of seven small Shan principalities, lying approximately between 27° and 28° N. and 97° and 98° E., north of Myitkyinā District, Upper Burma, and east of the north-east corner of Assam. Their area is about 900 square miles and their population about 11,000; but these are only approximations, for, though nominally under the supervision of the Commissioner of the Mandalay Division, Hkamti Long is beyond the 'administrative' border of the Province, and has not yet been brought under direct control. Portions of it have, however, been ascertained to be fertile and fairly populous. It is watered by the Malikha. The tract was formerly an outlying district of the Shan kingdom of Mogaung, and a considerable portion of its inhabitants are still Shans; but the Shan population has of late been hemmed in, owing to the pressure of the Kachins and other hill tribes. It was visited by Colonels Macgregor and Woodthorpe in 1884–5, by Mr. Errol Gray in 1892–3, and by Prince Henry of Orleans in 1893.

Boundaries, configuration, and hill and river systems.

Kathā District.—District in the Mandalay Division of Upper Burma, lying between 23° 30′ and 25° 7′ N. and 95° 6′ and 96° 42′ E., for the most part along the west bank of the Irrawaddy, with an area of 6,994 square miles. It is bounded on the north by the Upper Chindwin and Myitkyinā Districts; on the east by the Kaukkwe river as far as its junction with the Irrawaddy; thence, by the State of Möngmit (Momeik) and the Shweli river to its mouth, and southwards of this point by the Irrawaddy. The southern boundary abuts on the 'Ruby

Mines and Shwebo Districts, and the western on the Upper Chindwin.

With the exception of a small tract east of the Irrawaddy, the greater part of Kathā is a mass of hill country. Three main ranges traverse the District, roughly from north to south, separating its principal streams, but are of no very great height. Of these the easternmost is the Gangaw range, which runs southwards from the north-east corner of the District to meet the Irrawaddy at Tigyaing. Its course is, in the main, parallel to that of the stream, and its highest point is 4,400 feet above sea-level. The principal pass crossing it is at Petsut, 12 miles west of Kathā, over which a small branch line runs from Kathā to Nabā on the main line of the railway, at a height of about 500 feet above the surrounding country. West of the Gangaw Hills is the Minwun range, starting from the extreme northern limit of Kathā, east of the Taungthonlon hill, and running down the centre of the District to its southern boundary, where the Irrawaddy flows about 5 or 6 miles east of the hills. The principal pass over the ridge is the Mawgundaing, crossed east and west by the road from Tigyaing to Wuntho, about 12 miles west of Tigyaing, at a height of about 1,500 feet. There is a gap in the hills near Mawteik, through which the Meza river has cut from west to east. The Sagaing-Myitkyinā railway on its way north climbs the range by way of a gorge between Bonchaung and Nankan. The third main range, the Mangin, passes through the Wuntho subdivision to the east of the Mu river. Its most elevated point is Maingthon, 5,450 feet above sea-level, a little west of the centre of the District. This is the highest peak actually within the District, though the Taungthonlon, on the north-western border, is a little higher. All three hill ranges are covered with dense jungle, and contain much teak and other valuable timber, besides considerable quantities of bamboo.

The principal rivers are the Irrawaddy, the Kaukkwe, the Shweli, the Meza, the Mu, and the Namyin (or Mohnyin). The IRRAWADDY enters Kathā about half-way down its eastern side, and as far south as the mouth of the Shweli separates the greater part of the District from a small level tract on its eastern bank. South of the Shweli it forms the eastern boundary for about 25 miles. It runs with a south-westerly course in what is for the most part a wide channel interspersed with numerous islands, and is navigable all through the year by all sizes of river-craft. The Shweli flows into the Irrawaddy on its left bank, in the south-east of the District, separating Kathā from

the Ruby Mines District for about 25 miles. In these lower reaches it is a wide waterway on which boats can ply. The Kaukkwe stream, winding southwards into the Irrawaddy from Myitkyinā, forms the eastern boundary from its confluence with the main stream up to the north-east corner of the District. It can be used by light-draught launches as far as Thayetta (20 miles), and by small river-craft right up into Myitkyinā. Separated from the Irrawaddy valley by the Gangaw range is the malarious Meza valley. The Meza rises in the Taungthonlon hill on the north-west border of the District, and, with its numerous affluents, waters nearly all the Banmauk subdivision. Following a southerly course, it passes through a gap in the Minwun range, and enters the Indaw township near Mawteik, and from thence flows southwards between the Gangaw and Minwun ranges, emptying itself eventually into the Irrawaddy, immediately below Tigyaing. The valley between the two eastern hill ranges, followed by the railway for the greater part of its course through the District, is drained in the far north by the Namyin (Mohnyin), a southerly tributary of the Mogaung river in Myitkyinā District. In the southwestern quarter of the District, lying west of the Mangin range, is the Mu, which rises in the south-west of the Banmauk subdivision and flows in a southerly direction, through the middle of the Pinlebu township, into Shwebo District, but is not navigable within the limits of Kathā. Its tributary on the east, the Daungyu *chaung*, rises in the Wuntho township, waters the entire Kawlin township, and from its mouth eastwards for more than 30 miles forms the southern boundary of the District.

The Indaw Lake is the only considerable sheet of water in Kathā. It lies close to the railway, 5 miles west of Nabā junction near the centre of the District. It is more than 3 miles long and a mile broad, and is a fishery of some importance. A curious feature of the lake is the absence of any streams flowing either into or out of it.

Geology.

The Mangin range of hill consists of trap, with veins of gold-bearing quartz, while the eastern part of the District is occupied by crystalline palaeozoic rocks, of which little is known. West of these a portion of the country is covered by Tertiary sandstones and clays, in which coal has been found near Wuntho. West of this again a large area of eruptive diorite, associated with volcanic ash, has been laid bare by the denudation of the Tertiary sandstones. The diorite contains veins of auriferous pyrites, the same metal being found also disseminated in the ash-beds. The Minwun range is principally sand-

stone, and the Gangaw range consists of mica schist in the south and of granite in the north. Limestone also occurs in parts.

Botany.

The most noticeable features of the vegetation are touched upon under the head of Forests below. The flora is rich and varied, but has not been studied scientifically.

Fauna.

The wild animals usually found in Upper Burma are plentiful. Tigers, leopards, elephants, bison, and *tsine* or *hsaing* (*Bos sondaicus*) roam the jungles in considerable numbers, while bears are common in the more hilly parts. *Thamin* (brow-antlered deer) are fairly numerous in the southern part of the Wuntho subdivision. Wild hog are plentiful everywhere, and do much damage to the crops. The Khedda department are at present (1906) working in the District, and have effected considerable catches of elephants, but many of these died of anthrax.

Climate, temperature, and rainfall.

Kathā has a bad reputation for malarial and other fevers. The *tarai* at the foot of the hills is undoubtedly very unhealthy at all times; in the hot months the heat all over the District is great, and the absence of wind at this season and in the rains adds to the discomfort of the residents, while even the cold season is made unhealthy by fogs near the Irrawaddy and the other streams. The temperature has not been regularly recorded, but it has been found to range roughly from 45° at night to 75° in the day in the winter, from 70° to 90° in the rains, and from 80° to 105° in the hot season. In the cold season there are heavy dews. The annual rainfall averages 58 inches at Kathā, and varies in the other portions of the District from 42 inches at Tigyaing in the plains to 67 inches at Banmauk in the hilly areas. The Meza valley between the Indaw Lake and Meza railway station is subject to inundation. The most notable flood of recent years occurred in 1901, when considerable damage was done to the railway and to other property.

History and archaeology.

Few details of the early history of the District are known. It is said that during the eleventh century Anawrata, who was then king of Pagan, made a pilgrimage to China in search of relics of Buddha. This led to an endeavour to define the boundary of his territory with China; and from this time onwards the tribes to the north, including those in the neighbourhood of what is now known as Kathā, are said to have acknowledged Burmese suzerainty. The Kachins are reputed at one time to have inhabited a large area in Kathā and to have been gradually pushed back to the northern hills by the Shans

and Burmans, but this seems doubtful: in fact, everything points to the pressure having been from the north, and to have been applied by the Kachins, who have, so far as appears, not given ground again. A Chinese army is said to have overrun the District in one of the invasions from the north, but its stay was of brief duration. It established itself at Tigyaing, where portions of the old fort walls are still visible, but it was soon driven out. In 1883 the northern part of the District was invaded by Kachins from the north, who burnt many villages and ravaged a great portion of the country.

Kathā was first occupied by the British early in 1886, and gave some trouble during that and the following year. In course of time the troops, British and native, were gradually replaced by military police. It was not, however, until the commencement of the year 1890 that the assistance of the regulars could be wholly dispensed with. The character of the country rendered the breaking up of the rebel and dacoit gangs, many of which were headed by ex-Burmese officials and professional brigands, no easy or expeditious matter, and the malarious climate caused the loss of many lives. The District, known in the early years after the annexation as Myadaung, was always noted for its turbulence; and it is gravely recorded that the local village officials (*myothugyis* and *shwehmus*) were formerly compelled to live in specially high houses, and to sleep in coffin-like troughs of wood of sufficient thickness to resist a gunshot or the lunge of a spear.

Chief among those who indirectly opposed the British after the annexation was Maung Aung Myat, the Sawbwa of Wuntho, a so-called Shan State lying between Kathā District and the Upper Chindwin. This chieftain seized the opportunity to increase both his power and the area of his State. By various means he succeeded in driving out a number of officials on his borders, and by promises of loyalty and obedience to the British Government he obtained permission to retain as part of the Wuntho State a portion of the territory thus acquired. It was long, however, before he would meet British officials, and eventually in 1891 a rebellion broke out at his instigation among the Wuntho people. The first signal act of insurrection was the seizure of Banmauk in February. This was followed by an attack upon Kawlin and the burning of the subdivisional head-quarters. Other acts of violence were committed and much damage was done to property. The rebels were, however, defeated at Kawlin, at the Kyaingkwin hill between Kawlin and Wuntho, and at Okkan in the Ye-u country; and

the rising was suppressed before the end of the hot season, at the cost, however, of a European officer and a number of men. Its immediate result was the incorporation of Wuntho State in Kathā District. The Sawbwa escaped to China, where he is believed to be still living.

The most notable sacred edifices are the Myazedi, the Shwegugyi, the Aingtalu, the Myatheindan, and the Shwebontha pagodas. The Myazedi is situated in the middle of Kathā town, and forms the landmark dividing the northern from the southern quarter. It is said to be one of 84,000 pagodas, each no bigger than a cotton basket, built by a king of Patna, known to the Burmese as Thiridhammathawka Min of Patayipotpyi. U Pathi, a *myothugyi* of Kathā, enlarged the pagoda to its present size and shape in 1832. In 1883 it was greatly damaged by the wild Kachins who occupied the town during the raid referred to above, and what almost amounts to a new shrine has now been built on the old site in the most modern style of Burmese architecture. The Shwegugyi pagoda, built by king Bodawpayā, stands in the northern quarter of Kathā town. The Shwebontha pagoda, situated at Bilumyo, is also said to be one of the 84,000 works of merit aforesaid. Near it are the ruins of an old fortified city. The Aingtalu pagoda stands about 2 miles north-east of Aleywa (Moda), on a hill on the west bank of the Irrawaddy. It appears to be a very ancient structure, and is much broken down, and for many years was completely hidden by jungle growth. The Myatheindan pagoda stands on the end of the Gangaw range above the Irrawaddy at Tigyaing. The remains of the old wall erected by the Chinese when they invaded this part of the country are still to be seen at Tigyaing.

The people.

The population of Kathā in 1891 was 90,548 (not including the Wuntho State, annexed in that year), and in 1901 amounted to 176,223. Its distribution in the latter year is shown in the table on the next page.

There are no towns of importance, and very few large villages. The last few years have seen a rapid increase of population in the country lying along the railway; but it has not extended to the riverain portions of the District, where, it is said, development has been arrested by the cost of transit. Immigration has taken place largely from Shwebo, and to a lesser extent from Mandalay District. Rather more than 95 per cent. of the people are Buddhists. Burmese is the language of about 123,000. Kadu is spoken in the west, and Shan and Kachin in the north.

Of the total population in 1901 Burmans numbered 82,800, Shans 49,400, Kadus 34,200, and Kachins 5,900. The first named are settled over the greater part of the District; but while the Tigyaing and Wuntho townships are almost exclusively Burmese, there are comparatively few Burmans in the Banmauk and Mawlu townships. Broadly speaking, the Bur- Race and occupation.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Kathā . .	1,152	1	178	20,062	18	+ 7	5,127
Tigyaing. .	352	...	116	16,046	46	...	4,448
Mawlu . .	1,344	...	281	17,178	13	+ 177	2,564
Indaw . .	416	...	151	14,208	34	+ 26	3,049
Wuntho . .	592	...	301	22,934	39	*	5,508
Kawlin . .	536	...	239	28,114	52	*	7,561
Pinlebu . .	1,367	...	362	29,321	21	*	4,593
Banmauk .	1,235	...	338	28,360	23	*	3,431
District total	6,994	1	1,966	176,223	25	...	36,281

* The last four townships belonged in 1891 to the State of Wuntho.

mese element is strongest in the south, and grows weaker towards the north, where Shans, Kadus, and Kachins preponderate. The KADUS inhabit the western townships—Banmauk, Pinlebu, and Indaw; the Shans occupy the north, being most numerous in the Mawlu township, but they are well represented also in Kathā, Indaw, Pinlebu, and Banmauk, particularly in the last two. The Kachins are found in greatest numbers in the hills of Mawlu in the north of the District, and in the north of the Kathā township. In 1901 Musalmāns numbered 940 and Hindus 1,240; of these 450 Musalmāns and 180 Hindus lived in Kathā itself. A large number of the Indian residents are Government or railway employés. The number of Christians in 1901 was only 153, mostly Europeans and Eurasians. Nearly half of them were residents of Kathā town. In 1901 about 77 per cent. of the population were engaged in or dependent on agriculture, about one-sixteenth of these being supported by *taungya* (shifting) cultivation alone.

The District is composed mainly of hills, between which lie scattered patches of cultivated land, where the silt brought down by the streams from the hill-sides has been deposited so as to form a surface sufficiently level for rice cultivation. In the higher valleys the soil is, as a rule, very fertile, the most common type being a rich grey loam known as *myema*. Another General agricultural conditions.

kind is a thick heavy clay, hard to work, and very liable to become water-logged, a defect which is common more or less to all the soils of the District. In the lower valleys the ground is often similar to that described above, but in many cases it appears to have been formed of matter washed down from the lower slopes of the hills. These are as a rule composed of *indaing* or laterite, and the low land is therefore often very sandy and of poor quality. Plains of moderate extent stretch southwards from Wuntho to the boundary of Shwebo District, and from Mohnyin in a north-easterly direction to Myitkyinā. *Taungya*-cutting is practised in parts, but there is little or no permanent *ya* (high land) cultivation. The *taungya*-cutters are recognized as the poorest members of the agricultural community, and it is always their ambition to become possessed of ordinary plain rice land, though they seem somewhat reluctant to migrate in search of it.

Chief agricultural statistics and principal crops.

The land tenures prevailing are of considerable interest. Officers have from time to time been placed on special duty in connexion with this question, but a comprehensive inquiry has only recently been made by the Settlement officer. From his report it appears that the southern part of the District includes small portions of the old Pyinsala-nga-myo and Myedu *wun*-ships. In these tracts the tenures are similar to those prevailing in other parts of Upper Burma. In the rest of the District the tenures are found to have been of a communal nature. Land within a village or *thugyi*-ship could be held only by a resident, and sales or mortgages, where permitted at all, were allowed only to another resident. If a landholder removed to another village he forfeited his land, though in some cases he was entitled to recover it on his return. This system was enforced most stringently in the old Wuntho State, where no mortgages or sales were permitted, and where the *thugyi*, as head of the commune, allotted available lands to residents, and might in certain cases redistribute land already occupied or subdivide an existing holding to provide land for a new-comer. In what is known as the *Shwe* country, and elsewhere in the District, the power of the *thugyi* was more restricted.

The principal agricultural statistics for 1903–4 are given on the next page, the areas being in square miles.

Of the total cultivated area rice covered 223 square miles, and sesamum 3,300 acres. Tea and tobacco are grown, but only to a small extent. The former is produced on the hills in the Bànmauk township in the north-west of the District. The

area under garden cultivation was only 800 acres, composed mostly of plantain groves.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Kathā	1,152	11	5	
Tigyaing	352	16	7	
Mawlu	1,344	18	...	
Indaw	416	18	8	4,000
Wuntho	592	41	23	
Kawlin	536	70	...	
Pinlebu	1,367	35	...	
Banmauk	1,235	23	4	
Total	6,994	232	47	4,000

Improvements in agricultural practice.

Cultivation is extending gradually and normally, and in several areas it is still susceptible of considerable expansion. Its growth is most marked in the plains around Mohnyin. This part of the country, which was ravaged by the Kachins in 1883, is now being rapidly repopulated, and much of the old cultivated land is being cleared afresh. There is little indebtedness among the local husbandmen. The ancient systems of land tenure are still maintained, and these being of a communal, or *quasi*-communal, character strictly forbid the alienation of land to persons living outside the community. Government advances for agricultural purposes have been freely made since 1888–9. The amount advanced in 1903–4 was Rs. 18,000. No difficulty has been experienced in the recovery of the loans.

Cattle, &c.

There are no special breeds of domestic animals. Buffaloes are more generally used than kine, and those suitable for timber-dragging fetch the highest prices. Ponies are imported principally from the Shan States through Bhamo, and are generally small-sized. Generally speaking, goats are kept only by natives of India.

Irrigation and fisheries.

A good deal of the rice land is irrigated in some way or other, as the conformation of the country lends itself to such processes. To secure the required water, the many hill streams and rainy season drainage channels are dammed, and their contents diverted on to the fields. Most of the dams, however, supply only small areas, sometimes only a single holding. The most important irrigation scheme is at Wuntho, where two weirs on the Daungyu water a considerable area, dowered with a fertile soil, and productive of good crops. A fairly extensive area also is irrigated in the neighbourhood of the Indaw Lake. On the Meza the water-wheel known as the *yit* is used to lift

water on to the fields. The total area returned as irrigated in 1903–4 was 47 square miles. The most important inland fishery is in the Indaw Lake. Fishing is carried on in sections of the Irrawaddy and the Meza, known as the Myityo fisheries, and in the swamps adjoining the former river. The fishery revenue in 1903–4 amounted to Rs. 70,000.

Forests. The District comprises the greater part of the Kathā Forest division, as well as portions of the Mu and Upper Chindwin divisions. The Kathā division lies close to the Irrawaddy, and includes the area drained by the Meza river. The Mu division comprises as much of the District as is drained by the Mu river and its tributary the Daungyu. A portion of the Banmauk township falls within the drainage area of the Chindwin, and is included in the Upper Chindwin Forest division. The total forest area exceeds 4,000 square miles in extent, and includes 1,119 square miles of 'reserved' forests. Reservation is not yet complete, but some areas have already been notified, and others will probably be proposed shortly. Teak is the predominant species of timber tree: in fact, in many places it may be said to grow almost like a weed. *Padauk* (*Pterocarpus sp.*) and *pyingado* (*Xylia dolabriformis*) are found in the south of the District, where the climate is drier. Considerable quantities of 'unreserved' woods are extracted, principally from unclassed forests; of these the most important are *in* (*Dipterocarpus tuberculatus*), *ingyin* (*Pentacme siamensis*), *kanyinbyu* (*Dipterocarpus alatus*), and *yamane* (*Gmelina arborea*). Bamboos and canes are also obtained in large quantities. The minor forest produce consists of *shaw* (*Sterculia sp.*), *indwe*, and *pwenyet*. A little cutch is extracted in the south, and small quantities of lac are found near Banmauk.

Owing to the accessibility of the Irrawaddy and Meza forests, most of the valuable teak was extracted from them before annexation. Large trees are now scarce in these areas, and where found prove difficult of extraction, and in many of the Reserves the growing stock consists mainly of coppice or stool shoots springing from the old stumps. There are some teak *taungya* plantations and a little experimental cultivation of rubber in the Mohnyin Reserve.

The total forest receipts in 1903–4 amounted to about $4\frac{3}{4}$ lakhs. It is impossible to give exact figures either of the revenue or the area of unclassed forests, in consequence of the fact that the District boundaries and those of forest divisions do not coincide.

Gold, copper, iron, and lead are found. A gold-mine was worked for some years at Kyaukpazat by an English company, but the reef has been worked out and the mine is now closed. The company had a capital of Rs. 12,000, and used the cyanide process, with a crushing plant of ten stamps. Gold-washing is still carried on locally in the beds of streams in many parts of the Wuntho subdivision, and in some places in Banmauk. Little is known as to the return obtained, but it appears to be very small. This part of the country was formerly known as the *Shwe* ('golden') country, three divisions of which were recognized, the Shwe Ashe Gyaung, the Shwe Ale Gyaung, and the Shwe Anauk Gyaung, the two first being within Kathā District. They were not continuous tracts, but included many scattered villages where revenue used to be paid in gold, and whose *thugyis* were called *shwehmus*. Iron is found in small particles in the beds of streams at Thanthonda, Gananma, Gananbwa, and Taman in the Wuntho subdivision, but there is little or no trade in local iron now. Lead occurs at Mawka, Mawhaing, and Mawkwin, and used to be dug out of pits from 20 to 60 feet deep, which are, however, not worked at present. Copper is found at Sigadaung and, like lead, was at one time extracted, but the mines have been closed for many years. Jade occurs at Mawlu, and soapstone of inferior quality in the Kathā township. A small quantity of salt is produced, principally from brine-wells in the Mawlu and Pinlebu townships. Minerals.

Kathā possesses no arts or manufactures. The greater part of the population are dependent on agriculture, supplementing their earnings by other kinds of manual labour in the dry season. From Pinlebu and Banmauk a considerable number of the people go every year to work at the jade-mines. After agriculture the extraction of timber is the most important industry. Three European firms are at present engaged in the timber business in different parts of the District, in addition to a number of minor contractors. A steam saw-mill at Kalon, on the west bank of the Irrawaddy, 22 miles south of Kathā town, employs about twenty-two persons. The only other industrial enterprise which employed steam-power was the Kyaukpazat gold-mine, now closed. Pickled tea of two kinds, known respectively as *paungthi* and *pya-okthi*, is made in the west; gold-washing and salt-boiling are both practised on a small scale; and the manufacture of cart-wheels and the making of sandals and straw hats are other minor industries. Arts and manufactures.

Commerce and trade.

Timber, bamboos, cane, and other minor forest produce and paddy are the principal exports. The trade in timber consists of teak, *in*, and *ingyin*, and a few other 'unreserved' woods, which are rafted down the Kaukkwe, Meza, and Shweli streams into the Irrawaddy, and go by this route to Mandalay, the railway being utilized occasionally from Kadu, about 5 miles along the line south-west of Mohnyin. Considerable quantities of paddy are exported by Burmese brokers by rail and river, principally to Mandalay, for milling. The collecting centres on the railway are Wuntho, Kawlin, and Mohnyin, which are within easy reach of the large rice-growing areas: namely, Tigyaing on the Irrawaddy and Kywegawgyi on the Meza. Timber in rafts and paddy in boats are also sent down the Mu from Pinlebu; and a fair amount of cured and dried fish from the riverain villages leaves Kathā by rail for Mogaung and the jade-mines, and by road for the west of the District and the Upper Chindwin. A small trade in pickled tea is carried on in the Wuntho subdivision, where it is grown and manufactured. The main imports are hardware for agricultural implements and house-building purposes, cotton twist and yarn, cotton piece-goods, silk and cotton waistcloths and handkerchiefs of both European and Burmese manufacture, Japanese umbrellas, crockery and plated ware, jaggery, *til* or gingelly and kerosene oil, and salt of both European and Shwebo manufacture.

Means of communication.

The Sagaing-Myitkyinā railway cuts through the District in a north-easterly direction for 115 miles, traversing the most important rice-growing tracts, with stations at Kawlin, Wuntho, Indaw, Mawlu, Mohnyin and other places. A branch line, 15 miles long, runs from Nabā south-eastwards to Kathā, connecting the main line with the Irrawaddy.

In the eastern part of the District the Irrawaddy forms the chief means of communication. The Irrawaddy Flotilla Company runs regular services of mail and cargo steamers up and down the river, and a daily ferry steamer between Kathā and Bhamo connects with the railway at Kathā.

The Public Works department maintains 185 miles of road, mostly unmetalled. The principal tracks are: Indaw to Mansi, passing through Banmauk, 61 miles, unmetalled; Wuntho to Pinlebu, 41 miles, unmetalled; Kawlin to Tawma, 30 miles, metalled in places only; Wuntho to Singon, 17 miles, and Wuntho to Taungmaw, 11 miles, metalled in places only. The District fund, which is small, maintains only one unmetalled road, from Tigyaing to Manle.

For purposes of administration the District is divided into three subdivisions: Kathā, comprising the townships of KATHĀ, TIGYAING, MAWLU, and INDAW; Wuntho, comprising the townships of WUNTHO, KAWLIN, and PINLEBU; and the subdivision and township of BANMAUK. Subordinate to the township officers are 530 village headmen. In addition to the subdivisional and township officers the Deputy-Commissioner is assisted by a treasury officer, who is also sub-registrar, an *akunwun* (in subordinate charge of the revenue administration), and a superintendent of land records, who has under him 5 inspectors and 34 surveyors. The Public Works department is represented by an Assistant Engineer under the Executive Engineer in charge of the Myitkyinā division. District subdivisions and staff.

The Deputy-Commissioner, subdivisional officers, and township officers preside over the District, subdivisional, and township courts. Under the Kachin Hill Tribes Regulation, 1895, which is in force in the hill tracts of the District, the District Magistrate is Sessions Judge. Crime generally is infrequent and no class of offence is exceptionally common. In the Kachin Hills, however, a good deal of opium smuggling takes place, which is difficult to check, and a few large seizures of opium brought in from China through Bhamo District have been made in recent years. The opium habit is prevalent in most parts of the District, as is frequently the case in malarial tracts. Civil justice and crime.

The revenue system is at present at a stage of transition. On cultivated land which has been surveyed, land revenue is for the present assessed at rates varying from 4 annas to Rs. 1-8-0 per acre, the average assessment being about 10 annas. On unsurveyed land, revenue is assessed at one-eighth of the gross produce, commuted at rates which are fixed annually. The incidence of this form of taxation is slightly heavier than that by acre rates. In the surveyed portions the average size of a holding is a little over 4 acres. A special survey is now being made which will include most of the unsurveyed but cultivated land. The settlement is in progress, and the operations have by now reached an advanced stage. Revenue administration.

The table on the next page shows, in thousands of rupees, the fluctuations in the revenue since 1891-2, the first year for which statistics for the District as now constituted are available.

Thathameda brought in Rs. 3,65,000 in 1903-4, and till

the settlement rates have been introduced will continue to be the main source of revenue.

	1891–2.	1900–1.	1903–4.
Land revenue . .	66	1,73	1,69
Total revenue . .	4,86	6,28	6,48

Local funds. The District fund, administered by the Deputy-Commissioner for the up-keep of roads, *dāk*-bungalows, &c., had an income of Rs. 15,700 in 1903–4, the chief item of expenditure being public works (Rs. 5,400). No municipalities have been constituted.

Police and jails. The civil police force is in charge of a District Superintendent, and is divided into three subdivisional charges corresponding with the civil administrative subdivisions, Kathā, Wuntho, and Banmauk. The first is an Assistant District Superintendent's subdivision, the two latter are inspector's charges. An inspector is also attached to the force at District head-quarters. There are 9 police stations and 9 outposts. The sanctioned strength of the force, excluding the superior officers, is 7 head constables, 23 sergeants, and 268 constables. This includes 2 Kachin police, who, while nominally attached to the police stations, actually live in the hills.

The military police are a detachment of the Shwebo battalion, under an assistant commandant, who has his head-quarters at Kathā. The strength is 368 men, of whom 128 are stationed at Kathā itself, the remainder being distributed at the various township head-quarters.

The District jail at Kathā has accommodation for 87 prisoners. The principal industries carried on are grinding wheat for the military police, and carpentry and cane-work to supply the needs of the various Government offices. There is no public demand for jail-made articles, but the surplus produce of the jail garden is sold in the bazar.

Education. The standard of education is, all things considered, fairly high. In 1901 about 40 per cent. of the males and 2 per cent. of the females enumerated were able to read and write, the proportion for both sexes being 21 per cent. Of the 309 schools in the District in 1904, 2 were secondary, 53 primary, and 254 elementary (private); and the total attendance was 4,142 pupils, 224 of whom were girls. All are purely vernacular schools, and none is entirely supported by Government or municipal funds. The expenditure on education in 1903–4 was Rs. 2,400, derived entirely from Provincial funds.

There are 2 civil hospitals, with accommodation for 42 in-patients. In 1903 the number of cases treated was 15,970, including 699 in-patients, and 227 operations were performed. The income was made up of Rs. 4,900 from Provincial funds and Rs. 850 from subscriptions. Out-patients are treated in 3 military police hospitals, the total for 1903 being 2,341. There are also 2 railway dispensaries. Quinine in pice packets is sold only by the post offices, sales through the agency of village headmen having been a failure. Hospitals and dispensaries.

Vaccination is not compulsory in any part of the District, and makes but little progress. In 1903–4 the number of persons vaccinated was only 2,315, or 13 per 1,000 of the population. Vaccination.

Kathā Subdivision.—Eastern subdivision of Katha District, Upper Burma, containing the KATHĀ, TIGYAING, MAWLU, and INDAW townships.

Kathā Township.—North-eastern township of Kathā District, Upper Burma, lying on both sides of the Irrawaddy, between 23° 53′ and 24° 56′ N. and 96° 10′ and 96° 42′ E., with an area of 1,152 square miles. The population was 18,783 in 1891, and 20,062 in 1901, distributed in 178 villages and one town, KATHĀ (population, 2,931), the head-quarters. The greater portion of the township is covered with dense forests abounding in game. The inland villages obtain water for their rice lands from the network of small creeks covering the low-lying levels of the township. The hilly parts to the north and west are inhabited by Kachins, who practise *taungya* cultivation. The cultivated area under supplementary survey in 1903–4 was 11 square miles, and the land revenue and *thathameda* amounted to Rs. 52,100.

Tigyaing.—South-eastern township of Kathā District, Upper Burma, lying along the Irrawaddy, south of Kathā, between 23° 37′ and 24° 4′ N. and 95° 58′ and 96° 18′ E., with an area of 352 square miles. The population was 15,892 in 1891, and 16,046 in 1901 (nearly all Burmans), distributed in 116 villages. The head-quarters are at Tigyaing (population, 1,645), prettily situated on a small hill on the western bank of the Irrawaddy. The Gangaw range, passing through the north of the township, ends at Tigyaing, which was formerly the head-quarters of the District. Numerous large plains in the township are watered by creeks, and ample room exists for extension of cultivation. The surveyed area under cultivation in 1903–4 was 16 square miles, and the land revenue and *thathameda* amounted to Rs. 45,800.

Mawlu.—Northern township of Kathā District, Upper Burma, lying between 24° 18′ and 25° 7′ N. and 95° 50′ and 96° 36′ E., on both sides of the Sagaing-Myitkyinā railway, with an area of 1,344 square miles. The population was 6,206 in 1891, and 17,178 in 1901, distributed in 281 villages. The head-quarters are at Mawlu (population, 581), on the railway. The township is situated in the Meza and upper Namyin (or Mohnyin) valleys, and is separated from Kathā by the Gangaw range, on which the Kachin population lives. The rapid increase of population and cultivation apparent since 1871 is due to the railway, which has brought in a large number of immigrants. The township contained 18 square miles under cultivation in 1903–4, and the land revenue and *thathameda* amounted to Rs. 46,400.

Indaw (formerly Manle).—Central township of Kathā District, Upper Burma, lying between 23° 57′ and 24° 23′ N. and 95° 58′ and 96° 16′ E., on either side of the Sagaing-Myitkyinā railway, with an area of 416 square miles. The population was 11,291 in 1891, and 14,208 in 1901, distributed in 151 villages. The head-quarters are at Indaw (population, 470), on the railway. The township is watered by the Meza river. In some parts there are wide plains, affording scope for large expansion of cultivation. The township contained 18 square miles under cultivation in 1903–4, and the land revenue and *thathameda* amounted to Rs. 49,200.

Wuntho Subdivision (formerly Kawlin).—South-western subdivision of Kathā District, Upper Burma, containing the WUNTHO, KAWLIN, and PINLEBU townships.

Wuntho Township.—Township of Kathā District, Upper Burma, lying between 23° 46′ and 24° 14′ N. and 95° 35′ and 95° 59′ E., on either side of the Sagaing-Myitkyinā railway, with an area of 592 square miles. At one time it formed part of the Wuntho State, which rebelled in 1891, and was incorporated in Kathā District on the suppression of the rising. The population in 1901 was 22,934 (nearly all Burmans), distributed in 301 villages. The head-quarters are at Wuntho (population, 1,879), situated on the railway line in the south of the township. The surveyed area under cultivation in 1903–4 was 41 square miles, and the land revenue and *thathameda* amounted to Rs. 76,900.

Kawlin.—Southernmost township of Kathā District, Upper Burma, lying between 23° 30′ and 23° 54′ N. and 95° 20′ and 96° E., on either side of the Sagaing-Myitkyina railway, with an area of 536 square miles. It was annexed in 1891 with

the rest of the former Wuntho State. The population in 1901 was 28,114 (practically all Burmans), distributed in 239 villages. The head-quarters are at Kawlin (population, 813) on the railway, the scene of some of the most exciting episodes of the Wuntho rebellion. The surveyed area under cultivation in 1903-4 was 70 square miles, and the land revenue and *thathameda* amounted to Rs. 1,05,400.

Pinlebu.—South-western township of Kathā District, Upper Burma, lying between 23° 40′ and 24° 22′ N. and 95° 6′ and 95° 48′ E., on either side of the Mu stream, with an area of 1,367 square miles. It was, together with the rest of the State of Wuntho, annexed in 1891. The population in 1901 was 29,321, distributed in 362 villages. The head-quarters are at Pinlebu (population, 617), on the Mu, in the centre of the township. The surveyed area under cultivation in 1903-4 was 35 square miles, and the land revenue and *thathameda* amounted to Rs. 75,700.

Banmauk.—North-western subdivision and township of Kathā District, Upper Burma, lying between 24° 10′ and 24° 59′ N. and 95° 15′ and 95° 59′ E., with an area of 1,235 square miles. It was formerly part of the Wuntho State and was annexed in 1891. The population in 1901 was 28,360, distributed in 338 villages. The head-quarters are at Banmauk (population, 389), near the south-eastern corner. The township is hilly throughout, especially in the north, in the old Mansi township. Near Mansi may still be seen the stockades constructed by the Wuntho Sawbwa during his rebellion. The principal occupations of the inhabitants are rice and tea cultivation. The cultivated area under supplementary survey in 1903-4 was 23 square miles, and the land revenue and *thathameda* amounted to Rs. 82,500.

Kathā Town.—Head-quarters of the District of the same name in Upper Burma, situated in 24° 10′ N. and 96° 21′ E., close to the edge of the hills on the right bank of the Irrawaddy, 70 miles below Bhamo, and nearly 200 above Mandalay. Population (1901), 2,931. The town is unimportant historically, and has only come into prominence since the advent of the British. It contains a bazar and the usual public buildings, and is laid out along five principal roads running north and south parallel with the river, covering an area about half a mile long and a quarter broad. The residences in the native town are for the most part unpretentious. A branch line, taking off from the Sagaing-Myitkyinā railway at Nabā Junction (15 miles in length), terminates on the river bank close to the

courthouse, giving easy access to the steam ferry to Bhamo and the boats of the Irrawaddy Flotilla Company plying between that station and Mandalay. The town contains a civil hospital with twenty-three beds, maintained by Provincial funds. Kathā is one of the District head-quarters in Burma which have not yet been constituted municipalities.

Boundaries, configuration, and hill and river systems.

Ruby Mines District.—District in the Mandalay Division of Upper Burma, lying between 22° 42′ and 24° 1′ N. and 95° 58′ and 96° 43′ E., with an area of 1,914[1] square miles. The Shan State of Möngmit (Momeik) lies to the east, and is for the present administered as a subdivision of the District. The combined area is bounded on the north by Kathā and Bhamo Districts; on the east by the North Hsenwi State; on the south by the Tawngpeng and Hsīpaw States, and Mandalay District; and on the west by Shwebo and Kathā Districts. With the exception of a thin strip of land about 20 miles long by 2 miles wide, half-way down its western border, the whole area lies east of the Irrawaddy. The District proper consists of two tracts, essentially different in configuration: a long plain running north and south bordering the river and extending back some dozen miles from its banks; and in the south a mass of rugged mountains, stretching eastwards from the level, in the centre of which lies the Mogok plateau. North of this mass the ground rises rapidly from the plains to a ridge bordering the District proper on the east and separating it from the basin of the Shweli, in which the whole of the Möngmit State is comprised. The highest peak in the District is Taungme, 7 miles north-west of Mogok and 7,555 feet above the sea, and elsewhere are several imposing hills, conspicuous among them being the Shweudaung (6,231 feet), a little to the west of the first-named eminence. The Irrawaddy washes nearly the whole of the western border of the District from north to south, the upper part of its course being wide and dotted with islands, while the lower part, known as the first defile, lies confined between steep rocky banks which give a succession of picturesque views to the traveller on the river. The watercourses running across the plains into the Irrawaddy are for the most part short and of little importance. After the Irrawaddy the river most worthy of note is the Shweli (or Nam Mao), a considerable stream, which enters the Möngmit State from China near the important trade centre of Namhkam, and runs in a rocky defile in a south-westerly direction through Möngmit as far as the village of Myitson.

[1] Excluding Möngmit State.

Here it abruptly takes a northerly course till it is close to the northern boundary of the District, when it bends sharply south-west again to meet the Irrawaddy a few miles above Tigyaing in Kathā District. The valley below Myitson is wide and to a certain extent cultivated, in marked contrast to the country on the upper course. At Myitson the Shweli is joined on the left by a stream formed by the junction of the Kin, which rises near Shwenyaungbin in the Mogok subdivision, and the Nam Mit (Meik), watering the valley in which the capital of the Möngmit State is situated. Another stream deserving of mention is the Moybe or Nam Pe, which rises in the Tawngpeng State, and, after skirting the southern boundary of Möngmit and of the District proper, turns south to separate the Hsīpaw State from Mandalay District, finishing its course as the Madaya *chaung*.

The whole of the Ruby Mines District is occupied by crystalline rocks, mainly gneisses, and pyroxene granulites, traversed by grains of tourmaline-bearing granite. Between Thabeikkyin and Mogok bands of crystalline limestone are interbedded with the gneiss, and from these the rubies of the District are derived. The stones were formerly obtained from the limestone itself, but the principal sources now are the clays and other débris filling up fissures and caves in the limestone and the alluvial gravels and clays of the valleys of Mogok and Kyatpyin. Besides rubies, sapphires and spinels with tourmaline are found in the alluvium. Graphite occurs in small flakes disseminated through the limestone, and in a few localities is concentrated in pockets of considerable size along the junction of the limestones with the gneiss. **Geology.**

The vegetation is much the same as is described in the article on the NORTHERN SHAN STATES. In the evergreen tracts it is very luxuriant. **Botany.**

Tigers and leopards are common and are very destructive to cattle. Bear, hog, bison, *sāmbar*, and *gyi* (barking-deer) are all numerous. Elephants are found in places, especially in Möngmit territory, and here and there rhinoceros have been met with. **Fauna.**

The Mogok plateau is situated at a high altitude and possesses a temperate climate well suited to Europeans, the maximum and minimum temperatures at Mogok averaging 70° and 37° in December and 80° and 59° in May. Bernardmyo, a small station 10 miles to the north-west of Mogok, and somewhat higher, enjoys a climate colder and more bracing. It used to be a military sanitarium, but the troops have now been withdrawn from it. The climate of the river-side town- **Climate, temperature, and rainfall.**

ships resembles that of Mandalay, but the country farther from the river at the foot of the hills is very malarious. The Möngmit valley, too, is unhealthy, but, unlike that of Mogok, is excessively hot. The rainfall varies considerably in the different subdivisions. During the three years ending 1903 it averaged 44 inches at Thabeikkyin, 43 inches at Möngmit, and 98 inches at Mogok.

History and archaeology.

The Ruby Mines District was constituted in 1886 on the annexation of Upper Burma, but was practically left to itself, so far as any attempt at formal administration was concerned, until the end of the year, when a column under General Stewart marched up to Mogok. Some opposition was encountered in the neighbourhood of Taungme, but it was slight and easily overcome, and the new District remained quiet for about two years after its first occupation. Then troubles fell on it from outside, the result of the vigorous operations in the neighbouring plains, which drove the insurgents into the hills. Towards the end of the two years it was reported that the capital of Möngmit was being threatened by a large gathering under Saw Yan Naing, a rebel leader who had established his head-quarters at Manpon, a village situated three days' march north-east of Möngmit. As a result of these reports a small body of troops was posted at Möngmit; and after an unfortunate encounter in which, owing to insufficient information, a handful of troops suffered a reverse, a considerable body of dacoits which had advanced on Möngmit was attacked and severely defeated. The disturbances naturally affected the rest of the District. Twinnge, an important village of 300 houses on the bank of the Irrawaddy, was taken and burnt by a band under one Nga Maung. Another man of the same name and other minor dacoits from the same part threatened the District, and a feeling of insecurity prevailed. On the Tawngpeng border also Nga Zeya, a noted desperado, who had been driven out of Mandalay, was reported to have a considerable following. Dacoities were numerous, and the main road from Mogok to Thabeikkyin became very unsafe, especially during the rains, when it was haunted by the two Nga Maungs and other outlaws. The military garrison was therefore strengthened; an attack was made on Manpon and Saw Yan Naing's gathering was dispersed; at the same time steps were taken to strike at the root of the evil by improving the administration of the neighbouring States of Mönglong and Tawngpeng, and Gurkha troops were substituted for the existing garrison. The net result of all these measures was that the

disturbances were reduced to sporadic dacoities of a petty nature, chiefly committed on traders on the road between Mogok and Thabeikkyin, and these were finally checked by the maintenance of patrols on the road and the establishment of military police posts in the more important wayside villages. The District is now perfectly quiet.

The oldest pagoda of which anything is known in the neighbourhood of Mogok is the Shwekugyi, built in Dhammathawka Min's time. It is said to have been erected on the precise spot where the elephant which brought some bones and hair and a tooth of Gautama from India knelt down with its precious burden. At Kyatpyin there is a pagoda on the summit of a hill known as Pingutaung, remarkable chiefly for the amount of labour that must have been involved in the carriage of the materials to such a height. Tagaung, a village on the Irrawaddy in the west of the District, is the site of the earliest of the known capitals of Burma. Traces of the old city walls are still to be seen, and among the ruins of the pagodas terra-cotta tablets of considerable antiquity, known generally as Tagaung bricks, have been found in the past. Of the Tagaung pagodas, the four of most note are the Shwezigon, the Shwezedi, the Shwebontha, and the Shwegugyi. The most frequented shrine in the District is the Shwemyindin near Möngmit, which is the scene of a large gathering of many nationalities at the full moon of Tabaung (March) in every year.

The people.

The population of the District, excluding the Möngmit State, was 34,062 in 1891 and 42,986 in 1901, while that of the Möngmit State in the latter year was 44,708. The distribution of the population of the combined areas in 1901 is set forth below:—

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Mogok . .	610	1	112	24,590	40	+ 31	5,462
Thabeikkyin .	688	...	74	9,787	14	+ 20	3,206
Tagaung . .	616	...	71	8,609	14	+ 21	2,441
Möngmit . .	2,802	...	236	22,581	8	...	3,291
Kodaung . .	760	...	303	22,127	29	...	158
District total	5,476	1	796	87,694	16	...	14,558

Mogok is the only urban area of any size. There has been

considerable immigration from the Shan States, and to a less extent from the adjoining Districts of Mandalay and Shwebo. Buddhism is the religion of 79 per cent. of the population and Animism that of most of the remainder. Less than half the people speak Burmese and Shan. Kachin and Palaung are both strongly represented.

Race and occupation.

Burmans numbered 35,200 in 1901. They form almost the entire population of the river-side (Thabeikkyin and Tagaung) townships, and about one-third of that of the Mogok township. There are 10,400 Burmese-speakers, that is Burmans and mixed Burmans and Shans, in the Möngmit State, where they inhabit the larger villages in the valleys of the Shweli and its tributaries. Shans numbered 16,800 in 1901, being widely distributed over the Mogok township and the entire Möngmit State except in the Kodaung tract, where they have to a large extent been ousted by Kachins. The PALAUNGS numbered 16,400. They share the Kodaung township with the Kachins, and are found in considerable numbers in the Möngmit and Mogok townships. The KACHINS, numbering 13,300, form half the population of the Kodaung tract, and have spread into the Möngmit township. There were 2,800 natives of India in 1901 (of whom only 370 resided in the Möngmit State). About one-fourth are Musalmāns and the rest Hindus, and two-thirds of the total reside in Mogok and its suburbs. The Census of 1901 showed that 50,900 persons, or 58 per cent. of the total population, were directly dependent upon agriculture, a low proportion for Burma. Excluding the Mogok township, the percentage becomes 72 as compared with the Provincial average of 66. Of the agricultural population 28,700 persons were returned as dependent upon *taungya* (shifting) cultivation. About 10 per cent. of the total were dependent upon industries connected with precious stones. No Christian missions are maintained.

General agricultural conditions.

Owing to the hilly nature of the District the area of *taungya* cultivation is proportionately large, but rice is also grown on the low-lying levels. The soil in the valleys is usually rich and the rainfall is everywhere sufficient, eked out with the help of some small irrigation works, for the needs of the crops. Rice in the plains is as a rule first raised in nurseries, but the *mayin* (hot-season) crop is sown broadcast in the tanks as they dry up. Both the plough (*te*) and the harrow (*tun*) are employed, and for ploughing purposes the buffalo is in most general use. The advantages of manure are not fully understood (except by the Chinese gardeners near Mogok), though the stubble is burnt for fertilizing purposes on the fields. An experimental orchard

was started some little time ago at Bernardmyo, but was destroyed by fire before any good result had been attained. The garden was finally given up when it was proved that the rains broke before the fruit could ripen.

Chief agricultural statistics and principal crops.

The cultivated area of the District is very small. The main agricultural statistics for 1903–4 are shown in the following table, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Mogok . .	610	5	3	
Thabeikkyin .	688	5	1	
Thagaung .	616	3		5,399
Möngmit . .	2,802	...	...	
Kodaung . .	760	...	...	
Total	5,476	13	4	5,399

Rice is the staple crop, the great bulk of the out-turn being harvested during the cold season. *Mayin* rice is grown chiefly in Möngmit and Thabeikkyin. The 'wet' rice land in the District proper in 1903–4 comprised about 7,000 acres. A very small area (400 acres) is under sesamum, and a still smaller area under maize. All kinds of vegetables are extensively grown, and in particular the Lisaw colony near Bernardmyo cultivates potatoes, which do very well on the higher lands.

Improvements in agricultural practice.

Experiments have lately been made in coffee-growing on the Mogok hills. The soil is said to be suitable, but the industry is impossible at present owing to the high rates that have to be paid for labour. The jungles in the valleys are being gradually cleared, and cultivation is slowly extending over the face of the country; but the husbandmen are lamentably conservative and no improvements in the quality of seed can be recorded. Experiments were made at one time with Havana tobacco, but they ended in complete failure owing to the inclement weather. A similar venture was recently started with Virginia tobacco seed. No advances have been made under the Land Improvement Loans Act, but advantage is taken of the Agriculturists' Loans Act, a sum of more than Rs. 20,000 having been advanced under it during the four years ending 1903–4. The loans are utilized chiefly for the purchase of buffaloes for ploughing.

Cattle, &c.

Little attention is paid to the breeding of live-stock, and nature is allowed free play. The ponies are as a rule undersized, good beasts being hard to get. A little attention paid

to breeding would be of great advantage and help to rescue this useful type of animal from further deterioration, if not from total extinction. There are no recognized grazing-grounds, except those reserved by the Forest department, but uncultivated land and jungle are abundant.

Irrigation and fisheries.

The District contains no Government irrigation works, but nearly 2,300 acres of land are irrigated. The fisheries are confined to the Thabeikkyin subdivision. The number of recognized fishing areas is sixteen, and these are divided between the Tagaung and Thabeikkyin townships, eleven belonging to the former and five to the latter. The most important is the Ywahmwe fishery, which brought in Rs. 4,500 in 1903–4. The total revenue from this source is about Rs. 20,000.

Forests.

The forests are greatly affected and modified by the physical geography, which must be briefly described to explain the character of its vegetation. The dry tract of Burma extends from Shwebo into the Ruby Mines District in a band of about 10 to 12 miles broad from Thabeikkyin and Tagaung. This arid stretch is bounded by laterite hills, which in their turn give place to the high range of the Irrawaddy-Shweli watershed, with a large spur running eastwards to Mogok, and boasting of peaks of 6,000 feet and higher. On the eastern side of this watershed the ground slopes gently to an elevated plateau of laterite drained by sandy streams, which usually disappear into plains of grass as the Shweli is approached. On the farther side of that stream, i. e. on its east bank, perennial streams drain a hilly country of metamorphic rocks.

In the dry tract the vegetation partakes of the scrub-like character of the forest of the dry zone, the only bamboo being the *myin* (*Dendrocalamus strictus*), while the trees, except near the river and *jhīls*, are for the most part stunted cutch (*Acacia Catechu*). This is the only tree of any economic value. It grows sparsely now, but must have been plentiful in the past. Wherever the dry plain land rises up to meet the laterite hills there are stretches of *indaing*, or forests in which the *in* (*Dipterocarpus tuberculatus*) is the predominant tree. Where the laterite is modified with clay the forest is mixed with bamboo (*D. strictus*), and the characteristic tree is the *than* (*Terminalia Oliveri*). As the watershed of the Irrawaddy is reached, the laterite gives way to metamorphic rocks, and the forest changes to the mixed deciduous type. This consists of teak, *pyingado*, and deciduous trees mixed with bamboos. As the elevation rises, the high evergreen forest of Burma is

encountered, with various species of oaks and chestnuts, eugenias, *Dipterocarpus laevis*, and *Fici* forming the upper stratum, below which are found palms, screw-pines, canes, and bamboos, while the lowest stratum is composed of shrubs and ferns forming a dense mass of vegetation. As the elevation increases to 6,000 feet, wild tea (*Camellia theifera*) and cinnamon are found, while on the topmost levels there is no vegetation beyond short grass which forms open plains, while the ridges are covered with pines (*Pinus Khasya*). This is the natural sequence where not modified by the action of man; where, however, *taungya*-cutting has been prevalent, the evergreen forests turn into huge savannahs of coarse grass, 8 to 10 feet high in the rains, which are burnt annually in the hot season. On the laterite hills and plateaux to the east of the Irrawaddy-Shweli watershed, the forests consist of pure *indaing* jungle, which in Möngmit covers about 1,800 square miles. On the banks of the streams, where the soil is good alluvial loam, pure teak forests of fine quality are met with, or *padauk* mixed with bamboo. West of the Shweli the ordinary deciduous mixed forests of Burma are the rule, till, as the elevation increases, they are displaced by evergreen vegetation.

Owing to the extent of the natural teak forests very little systematic planting has been undertaken, a small *taungya* of 25 acres being the only area under plantations in the District. An attempt is being made to reafforest the grass savannahs caused by *taungya*-cutting in the hills by putting down pine seedlings. About 30 acres were so treated, but the pines were burnt and destroyed the first year, while in the second year the growth, though protected, was poor. In 1903–4 the area of the Forest division was 5,399 square miles, of which 994 square miles were composed of 'reserved' and 4,405 of unclassed forests. The receipts of the Forest department in 1903–4 amounted to nearly $4\frac{3}{4}$ lakhs.

The main industry is the extraction of rubies, sapphires, and spinels, all three of which are found together in the same gravel-beds. The Burma Ruby Mines Company, Limited, works on a large scale at Mogok and elsewhere with modern machinery under a special licence; and a large but fluctuating number of natives take out ordinary licences, which do not permit the use of machinery. The company's workings take the form of large open excavations. At present these vary from 20 to 50 feet in depth and are kept dry by powerful pumps: the ruby earth (locally known as *byon*) is loaded Minerals.

by coolies into trucks and hauled up inclines to the washing machines, which are merely rotary cylinders discharging into large pans, where by the action of water and revolving teeth the mud is separated from the gravel. The latter is then treated in pulsating machines which still further reduce the bulk, and finally the residue is picked over by hand. For the year ending 1904 the following was the result of the company's operations: rubies, 199,238 carats, valued at 13 lakhs; sapphires, 11,955 carats, valued at Rs. 8,700; and spinels, 16,020 carats, valued at Rs. 26,300. Of this total, stones worth 8·8 lakhs were sent to London for disposal there, and 4·5 lakhs' worth was sold locally.

The staff in 1904 consisted of the following: 44 Europeans and Eurasians, earning from Rs. 150 to Rs. 600 a month each; 254 Burmans, at R. 1 each a day; 1,073 Chinese, Shans, and Maingthas, at R. 1 a day; and 248 natives of India at from Rs. 20 to Rs. 100 a month, making a total of 1,619 hands. The company derives its power from an electric installation driven by water, which generates about 450 horse-power. During the dry season, steam is used to a limited extent, the fuel being cut locally.

The number of native miners varies very much, but the average for nine years ending 1904 was 1,220, paying to the company Rs. 60 a month per set of three men working each mine. It is quite impossible to estimate their gain; but, as the working expenses are at least Rs. 20 a month in addition to the sum paid to the company, the industry must produce Rs. 32,500 a month before any profit is made. The four methods of native mining adopted are known as *hmyaw* or hill-side workings, *lu* or cave workings, *twinlon* or pit workings, and *se* or damming a stream and diving for the gravel behind the dam or weir. Most of the produce is sold locally, though fine stones frequently go direct to London. In addition to the mining described above, women are allowed to wash with small baskets in all perennial streams licence-free. Their individual earnings are probably not often more than a few annas a day, but occasionally they pick up a valuable stone, and on the whole their takings must be not inconsiderable. They sell their finds, usually at the end of each day's work, to small ruby pedlars.

Tourmaline occurs in the District, and is mined on an insignificant scale near Nyaungdauk, on the road to Mönglong, and at Möngmit. The Burma Ruby Mines Company did a little work a few years ago on an outcrop of gold-bearing

quartz about 5 miles from Thabeikkyin; but the assays were not encouraging, and the place was abandoned. Plumbago is found on the surface at many places, notably near Wapyudaung. The company sank several shafts at Onzon, but the vein ended and further mining was discontinued. Various other persons have from time to time obtained prospecting licences and started a certain amount of work, but the results seem in all cases to have been unsatisfactory. Mica is distributed over apparently the whole District, but does not appear to be present in paying quantities. Limestone exists everywhere, but is only burnt where it is wanted for pagodas and brick buildings, and in Mogok by the Ruby Mines Company for their foundations, &c.

Arts and manufactures. The only local industry that has attained to any dimensions is mining for, and trading in, precious stones. A certain amount of stone-cutting, polishing, and setting is carried on in Mogok town. The work is, however, primitive; and most of the stones are sold in the rough, the best being sent to London and Paris, while the inferior qualities go to Mandalay, Calcutta, Bombay, and Madras. On the Shweli and Irrawaddy rivers the principal non-agricultural occupations are fishing, bamboo-cutting, and timber-trading. Rafts of bamboos, teak, and other kinds of timber are made up on the banks and floated down to Mandalay. Maingthas come into the District in large numbers every year for the dry season, chiefly from the Shan-Chinese States of Möngla, Möngda, and Mengtat. They are the iron-workers of the District and are welcome visitors, for besides being the most expert blacksmiths in an otherwise non-industrial community, they are esteemed the best working coolies in Burma.

Commerce and trade. Trade conditions vary in the different parts, but as a general rule the people depend on the outside world for most articles of consumption. Rice, sufficient for the requirements of the District outside the Mogok township, is grown within its limits in the Thabeikkyin and Möngmit subdivisions, but is also imported from the Shan States of Tawngpeng and Mönglong for Mogok and its environs. Other articles of import are opium brought from China via Lashio and Mönglong, pickled tea from Tawngpeng and Hsīpaw, cotton goods and articles of clothing. Weaving is carried on only in outlying villages, and the out-turn of the looms is intended solely for home consumption, while in the larger towns and villages foreign piece-goods are preferred as being both of better quality and cheaper than the local product. The same is true of articles of

hardware. In return for these imports Mogok offers precious stones, and Möngmit and Thabeikkyin rice, timber, and fish. The chief centre of trade is Mogok; and in the bazar, which is held every fifth day, there are to be seen representatives of a large and varied number of nationalities.

The main trade routes to Mogok are the Thabeikkyin cart-road, over which all goods from India and Europe travel; the Mönglong road, which unites Mogok with Hsipaw and connects with the Lashio railway; and the Möngmit road, over which the rice from Möngmit and Tawngpeng enters Mogok. Generally it may be said that trade is in the hands of the Chinese and Indian merchants, the Burmans and Shans confining themselves to trading in rice and precious stones. The chief means of transport are the mule and pack-bullock, the Chinese wooden saddle being used. A good deal of transport is done by *pakondans*—men carrying a bamboo pole on their shoulders, from each end of which hangs a pack. The time for these hucksters is the rainy season, when the hill roads become very trying for animal transport.

Means of communication.

There are no railways in the District. The most important road is that from Thabeikkyin to Mogok (61 miles), metalled throughout. This highway and the partially metalled mule-track from Mogok to Konwet, half-way to Möngmit, are maintained from Provincial funds. The District fund is responsible for the up-keep of two partly metalled roads from Mogok, one to Mönglong (17 miles), metalled for a portion of its length, and one to Bernardmyo ($10\frac{1}{2}$ miles); also of two unmetalled cart-roads, one from Twinnge to Thitkwebin (12 miles), and one from Wapyudaung to Chaunggyi (13 miles); and of three short cuts on the Mogok-Thabeikkyin road. The Möngmit State maintains an unmetalled cart-road from Thitkwebin to Möngmit ($35\frac{1}{2}$ miles), a continuation of the road from Twinnge, and mule-tracks from Möngmit to Konwet (10 miles), and from Möngmit to Namhkam through Molo. The Irrawaddy is navigable by the largest river steamers at all seasons of the year, and the Irrawaddy Flotilla boats between Mandalay and Bhamo touch at Thabeikkyin twice weekly up and down. In addition, a steamer plies twice a week between Mandalay and Thabeikkyin. The Shweli is navigable by river boats up to the cataracts by which the river descends from Namhkam to Molo, and is nowhere fordable.

District subdivisions and staff.

The District proper is divided into two subdivisions: the subdivision and township of MOGOK, and the Thabeikkyin subdivision, composed of the THABEIKKYIN and TAGAUNG

townships. The MÖNGMIT STATE, which is administered temporarily as a third subdivision of the District, is divided into the MÖNGMIT (Momeik) and KODAUNG townships. The subdivisions are in charge of the executive officers, as also is the Tagaung township, but the townships of Thabeikkyin and Mogok are directly under the subdivisional officers concerned. The Kodaung township is administered by a civil officer, generally a member of the Provincial Service, who is under the direct control of the Deputy-Commissioner, and exercises certain powers under the Kachin Hill Tribes Regulation, 1895. The District forms a subdivision of the Mandalay Public Works division (which includes the greater part of Mandalay District), and is nearly conterminous with the Ruby Mines Forest division. There are 261 village headmen, of whom 11 are subordinate headmen, receiving no commission. A number of them exercise special civil and criminal powers.

Civil justice and crime.

The civil courts are presided over by the executive officers, the treasury officer at Mogok acting as additional judge of the Mogok township court. As the District is situated on the borders of China and the Shan States, and peopled to a large extent by non-Burmans, a large traffic in smuggled opium is carried on, and offences against the Opium Act are consequently common. Similarly breaches of the Upper Burma Ruby Regulation, a special local law applicable to the stone tract, are numerous.

Revenue administration.

The District is made up of various old Burmese jurisdictions, where in former days a variety of revenue methods were in force. What is now the Mogok subdivision consisted of three administrative areas known as *sos*, which sometimes were independent jurisdictions, each under its own *sothugyi*, and sometimes formed the combined charge of a Burmese official known as the *thonsowun*. This area was treated practically as a royal demesne, and was to all intents and purposes farmed out to the *wun*. The rent, which in theory was fixed but in practice was fluctuating, was paid in kind; and to obtain the requisite supply of precious stones the *wun* levied a stone cess or *kyaukdaing* on those who mined and traded in rubies, and a *mindaing* or royal cess on those who did not. The *kyaukdaing* was paid in rubies; and the stones, duly diminished by what the *wun* thought might with safety be appropriated, were remitted to the court at Mandalay. The *mindaing* was designed to stimulate the production of stones; it was collected in cash, and was employed in making advances to the miners and in paying the *wun's* subordinates. There was no land tax

in the District under Burmese rule, though a nominal assessment of one-third the gross produce on rice land in the Mogok valley was used to gauge the capacity of the cultivators to pay the *mindaing*. After the annexation of Upper Burma *thathameda* was at first the only impost, and land revenue was not assessed till after it had become difficult to prove that the land (which in reality was nearly all state) had not in part been acquired by private individuals.

Revenue rates have varied since land revenue was first demanded. At present state land in the Mogok subdivision pays 15 per cent., and non-state land 10 per cent., of its gross out-turn, and Rs. 2-8-0 per household is paid on *taungya* cultivation. The same rates prevail in the Thabeikkyin subdivision, as well as in Möngmit (where in king Mindon's time land revenue was assessed at 1½ per cent. of the gross out-turn on all lands); but in Möngmit a sort of permanent settlement called *yaza* has been effected in the neighbourhood of the head-quarters, under which the cultivators pay a fixed sum on each plot of land, irrespective of the out-turn. The District has not yet been cadastrally surveyed or settled. The Ruby Mines Company pays an annual rent of 2 lakhs of rupees, plus 30 per cent. of the excess whereby the fees received from holders of ordinary licences exceed 2 lakhs, and 30 per cent. on the net profits of the company. In 1903-4 the receipts of the Government from the company amounted to Rs. 2,11,500. The total collections of *thathameda* (at Rs. 10 per household) amounted in 1903-4 to Rs. 7,300, those of land revenue to Rs. 17,000, and those of fishery revenue to Rs. 24,000, the aggregate revenue from all sources for the District proper (excluding Möngmit) being Rs. 3,90,000.

Local funds.

The District fund had in 1903-4 an income of Rs. 49,300, the chief item of expenditure being public works (Rs. 34,800). No municipalities have been constituted.

Police and jails.

The District Superintendent is the immediate head of the civil police. An Assistant Superintendent is in charge of the police in the Möngmit State. The sanctioned strength of the force is 3 inspectors, 5 head constables, 9 sergeants, and 173 constables. Two Kachin sergeants and 5 constables are also sanctioned for the Kodaung tract, and are directly under the civil officer, Kodaung. They form no part of the regular District police force. There are six police stations in the District proper and three in the Möngmit State. The Ruby Mines Company have three inspectors in their employ invested with police powers, whose duty it is to apprehend and prosecute

persons engaged in illicit mining, or otherwise contravening the provisions of the Ruby Regulation. The Ruby Mines military police battalion has its head-quarters at Mogok. It is under a commandant and an assistant commandant, and consists of 24 native officers, 79 non-commissioned officers, and 801 men, stationed at the township head-quarters, and on the main road from Mogok to the Irrawaddy.

A jail is under construction at Mogok. At present convicted prisoners are kept in the lock-up at that station, and if sentenced to more than two months' imprisonment, are sent under military police escort to Mandalay. The lock-up has accommodation for about forty prisoners.

Education

Education is in a decidedly backward state. There are no Government schools, and none of the private institutions is at all advanced. In 1901 the proportion of persons returned as able to read and write was 25·9 per cent. (40 males, 4·7 females), but the standard of literacy must have been very low. In the Möngmit State (with a large non-Buddhist population) the corresponding figure was only 7·7 per cent. In 1904 the District contained only 24 primary (public) and 107 elementary (private) schools, with a roll of 1,409 pupils (including 400 girls), as compared with 1,273 in 1901. In 1903–4 the expenditure on education was Rs. 1,600, met wholly from Government.

Hospitals.

The only hospital is at Mogok, which has accommodation for 36 in-patients. In 1903 the number of cases treated was 13,863, including 494 in-patients, and 206 operations were performed. The income was made up of Rs. 4,000 from Provincial funds and Rs. 600 from subscriptions. Another hospital is about to be built at Thabeikkyin.

Vaccination.

Vaccination is nowhere compulsory within the limits of the District. In 1903–4 the number of persons successfully vaccinated was 2,451, representing 28 per 1,000 of population.

Mogok Subdivision.—Southern subdivision and township of the Ruby Mines District, Upper Burma, consisting of a mass of hills broken up by ravines, lying between 22° 46′ and 23° 4′ N. and 96° 14′ and 96° 43′ E., with an area of 610 square miles. The population was 18,810 in 1891, and 24,590 in 1901, distributed in one town, MOGOK (population, 6,078), the head-quarters, and 112 villages. The importance of the township is derived from the ruby mines, which are described in the District article. About 10 miles north-west of Mogok is Bernardmyo (called after the late Sir Charles Bernard), situated

at an altitude of over 5,000 feet above the sea, where European troops were once quartered. The township contained about 3,500 acres under cultivation in 1903–4, and the land revenue and *thathameda* in the same year amounted to Rs. 53,000.

Thabeikkyin Subdivision.—Subdivision of the Ruby Mines District, Upper Burma, comprising the two river-side townships of THABEIKKYIN and TAGAUNG.

Thabeikkyin Township.—River-side township in the south-western corner of the Ruby Mines District, Upper Burma, lying between 22° 42′ and 23° 18′ N. and 95° 58′ and 96° 20′ E., with an area of 688 square miles. The population was 8,123 in 1891, and 9,787 in 1901, distributed in 74 villages, and is almost exclusively Burman. Thabeikkyin (population, 1,554), a village on the left bank of the Irrawaddy, 130 miles above Mandalay, the terminus of the metalled road from Mogok to the river, is the head-quarters. The greater part of the township consists of undulating country, gradually rising from the Irrawaddy to the foot of the Ruby Mines mountains. About 3,000 acres were under cultivation in 1903–4, and the land revenue and *thathameda* amounted to Rs. 10,000.

Tagaung.—River-side township in the north of the Ruby Mines District, Upper Burma, lying between 23° 15′ and 24° 1′ N. and 95° 58′ and 96° 33′ E., with an area of 616 square miles. The population was 7,129 in 1891, and 8,609 in 1901, distributed in 71 villages, and is almost exclusively Burman. Tagaung (population, 781), on the Irrawaddy, the site of an ancient Burmese capital, is the head-quarters. The township is flat and but little cultivated. In 1903–4 only 2,000 acres were under cultivation, and the land revenue and *thathameda* amounted to Rs. 18,000.

Möngmit State.—A Shan State, at present administered as a temporary measure as a subdivision of the Ruby Mines District, Upper Burma. It lies between 22° 44′ and 24° 6′ N. and 96° 10′ and 97° 38′ E., comprising the townships of MÖNGMIT and KODAUNG, with an area of about 3,562 square miles. The population in 1901 was 44,208. Except in the valley of the Shweli, it is mountainous. At the time of the annexation of Upper Burma Möngmit was in a very disturbed condition; and in 1889 Saw Maung, who had been driven out by rebels from the Sawbwaship of Yawnghwe, was appointed regent as an experimental measure, with a view to the restoration of order. It was not long, however, before it became apparent that Saw Maung was unable to manage the affairs of

the State, and in 1892 the administration was taken over by Government. The State is about to be restored to the Sawbwa, who has attained his majority. The revenue in 1903–4 was Rs. 14,900.

Möngmit Township (Burmese, *Momeik*).—A tract occupying the greater part of the Möngmit State and at present administered as a township of the Ruby Mines District, Upper Burma. It lies between 22° 44′ and 24° 6′ N. and 96° 10′ and 97° 10′ E., with an area of 2,802 square miles. In 1901 the population was 22,581, composed of Burmans, Shans, Palaungs, and Kachins in the ratio of 10, 5, 4, and 2. It contains 236 villages, the head-quarters being at Möngmit (population, 1,767), on a tributary of the Shweli. The township occupies almost the whole drainage of the Shweli river. Away from the Shweli valley it is hilly and forest-clad, and a large number of the inhabitants are occupied in tree-felling and in bamboo-cutting under forest contractors. Rice is exported to Mogok and Tawngpeng.

Kodaung.—A hilly tract in the north-east of the Möngmit State, at present administered by a civil officer under the control of the Deputy-Commissioner as a township of the Ruby Mines District, Upper Burma. It lies between 23° 5′ and 23° 49′ N. and 96° 49′ and 97° 38′ E., with an area of 760 square miles. It is a mass of hills rising in places to a height of 7,000 feet above the sea; but though the country is rugged, communications are fairly good, for there are usually mule-tracks connecting the villages. At one time Kodaung was entirely populated by Palaungs, but the Kachins began to oust these hill people about a hundred years ago, and of the total population (22,127) in 1901 half were Kachins and half Palaungs. There are 303 villages, the head-quarters being at Molo, on the Shweli. The law in force is that of the Kachin Hill Tribes Regulation, 1895.

Mogok Town.—Head-quarters of the Ruby Mines District, Upper Burma, situated in 22° 55′ N. and 96° 30′ E., in hilly country, about 4,000 feet above the sea. The town lies 36 miles due east of the Irrawaddy, with which it is connected by a road 60 miles in length leading to Thabeikkyin. Population (1901), 6,078. The town, which occupies the middle of a very picturesque mountain-girt valley, is the head-quarters of the ruby-mining industry in Burma, and is a thriving trade centre with a large and flourishing masonry bazar, which brings in a revenue of between Rs. 30,000 and Rs. 40,000 annually. A certain amount of stone-cutting, polishing, and setting

is carried on in the town, but the work is of a primitive character. It is less a town than a collection of villages, and is divided into nine quarters. The actual population of the group of villages that surrounds the District head-quarters, and owes its existence to the Ruby Mines Company, is about 15,000. Mogok has not, despite its size, been constituted a municipality, nor has any modified form of local self-government yet been introduced into it. The District fund benefits by the receipts from the bazar. Brick buildings are becoming common in the town, and frequent fires in the past have popularized the use of corrugated iron for roofing purposes. The usual public buildings include a hospital, and substantial residences have been built for the local officials and for the staff of the Ruby Mines Company. A jail is at present in course of construction.

SAGAING DIVISION

Sagaing Division.—The north-western Division of Upper Burma, lying between 21° 29′ and 26° 22′ N. and 93° 58′ and 96° 20′ E. It comprises four Districts: the UPPER and LOWER CHINDWIN, bestriding the Chindwin; and SAGAING and SHWEBO, extending from that river across the Mu valley to the Irrawaddy. It is bounded on the north by the unadministered Hukawng valley, on the east by the Mandalay Division, on the south by Myingyan District of the Meiktila Division, and on the west by Manipur and the Chin Hills. The population was 821,769 in 1891 and 1,000,483 in 1901; but the former figure did not include the population of two Shan States in the Upper Chindwin District which were enumerated in 1901. The distribution of population is given in the table below:—

District.	Area in square miles.	Population in 1901.	Land revenue and *thathameda* in 1903-4, in thousands of rupees.
Shwebo . . .	5,634	286,891	5,50
Sagaing . . .	1,862	282,658	7,93
Lower Chindwin . .	3,480	276,383	6,18
Upper Chindwin .	*18,590	154,551	3,45
Total	29,566	1,000,483	23,06

* Area figure revised since the Census of 1901.

There are 4,864 villages and 4 towns: SAGAING (population, 9,643), SHWEBO (9,626), MONYWA, and KINDAT, the first three of which are trade and industrial centres of some importance. The administrative head-quarters are at Sagaing, which is conveniently situated at the south-eastern corner of the Division, the District head-quarters of the Shwebo and Lower Chindwin Districts being accessible by rail, and that of the Upper Chindwin District by rail and river steamer. The majority of the population are Burmans, the number of Burmans in 1901 being no less than 915,204. The only other indigenous race strongly represented is the Shans (68,077), nearly all of whom inhabit

the northern townships of the Upper Chindwin District. An appreciable portion of the population is foreign, but most of the 7,704 Musalmāns and 4,538 Hindus enumerated in 1901 were either military policemen or indigenous Zairbādis. A few Chins are found in the hills along the western border of the Upper Chindwin District, and a few Chinamen at the main trade centres. The people, being Burman or Shan for the most part, are nearly all Buddhists. The aggregate of the adherents of the Buddhist faith in 1901 was 981,369, while Christians numbered 3,773, and Animists (practically all Chins) 2,289.

Boundaries, configuration, and hill and river systems.

Shwebo District.—A dry zone District of the Sagaing Division of Upper Burma, lying between 22° 11′ and 23° 52′ N. and 94° 50′ and 96° 1′ E., with an area of 5,634 square miles. It is bounded on the north by Kathā, on the east by the Ruby Mines and Mandalay Districts, on the south by Sagaing, and on the west by the Upper and Lower Chindwin Districts. The Mu, flowing down from the north, divides it into almost equal portions east and west, and the Irrawaddy forms the boundary on the east. It is for the most part a wide, almost rectangular plain running north and south, dotted with thin bushes and scrub jungle, with a low ridge of hills known as the Minwun range skirting the Irrawaddy in the east, and with small isolated clumps of rising ground in the north and north-east, and fringes of forest-clad upland in the west and north-west. The level is generally uniform and somewhat uninteresting; but the river-side villages with their pagodas and monasteries, and the interior plain, viewed from the crest of the Minwun range, are not without a picturesqueness of their own. The most important rivers are the IRRAWADDY and the Mu. The former enters the District near its north-eastern corner, and flows due south till it reaches Kabwet, about half-way down the eastern border. Here it bends westwards for a few miles, and again turning, runs south for a further stretch till it enters Sagaing District. It is navigable all the year round by river steamers of the deepest draught. The Mu is full of snags, and, except in the rains, is navigable only in its lower reaches. Running in a tortuous channel through arid country, it dwindles away in the dry season to a rivulet fordable everywhere along its course, though at the appropriate season it is freely used for timber-floating. The principal lakes are the Mahananda, the Halin (or Thayaing), the Kadu, and the Thamantha. The first, north-east of Shwebo town, fed by the old Mu canal, is the largest. The other three, lying south of Shwebo, are shallow

meres depending on the drainage from the adjacent country, but are rarely dry, though they seldom have much water in them.

The surface of the District is, to a great extent, covered by the alluvium of the Mu river, from beneath which rise low undulating hills of sandstone of Upper Tertiary (pliocene) age. To the east these are brought down by a great fault against crystalline rocks, gneiss, granite, and crystalline limestone, which form the Minwun range. The alluvium is largely impregnated with salt. Coal occurs in the Tertiary beds. **Geology.**

From a botanical point of view the District is very poor. Only three kinds of bamboos are found: namely, *thaikwa* (*Bambusa Tulda*), *myinwa* (*Dendrocalamus strictus*), and *tinwa* (*Cephalostachyum pergracile*). The most important trees are teak (*Tectona grandis*), *in* (*Dipterocarpus tuberculatus*), *thitya* (*Shorea obtusa*), *thitsī* (*Melanorrhoea usitata*), *yinma* (*Chickrassia tabularis*), *ingyin* (*Pentacme siamensis*), *pyingado* (*Xylia dolabriformis*), *sha* (*Acacia Catechu*), and *tanaung* (*Acacia leucophloea*). Further details regarding the vegetation will be found under the head of Forests. **Botany.**

The wild animals are the elephant, the bison, the *hsaing* (*Bos sondaicus*), the hog deer, the *sāmbar*, the barking-deer, the brow-antlered deer (*Cervus eldi*), the wild hog, the hare, the jackal (*Canis aureus*), the jungle dog (*Cyon rutilans*), and the common tree cat or palm-civet (*Paradoxurus hermaphroditus*). Tigers are scarce, but leopards are common everywhere; and during the cold season wild water-fowl abound. Quail visit the District in the rains, and the jungle-fowl and francolin breed and are plentiful. **Fauna.**

The climate is good, except in the north and north-west, where it is malarious. The heat in the dry season is very great, as elsewhere in the dry zone, but is less intense in the north and north-west of the District. The mean temperature recorded at Shwebo is 80°, the thermometer readings varying from 56° in January to 104° in May. The rainfall is scanty and irregular, except in the north and north-west. The average varies from 29 to 49 inches, but the maximum would, no doubt, be higher if a record were kept in the hilly tracts. The rainfall follows the valleys of the Irrawaddy and Mu, and leaves the rest of the District comparatively dry. **Climate, temperature, and rainfall.**

According to tradition Shwebo town was founded by a hunter (Burmese, *mokso*) named Nga Po at the end of the sixteenth century, and was then called Moksongapoywa. It was from this hunter ancestor that Alaungpayā (Alomprà), the **History and archaeology.**

redoubtable Burmese conqueror, traced his descent. The warrior king, who is said to have been born in the hunter's village, fortified the place after he had risen from obscurity to prominence, surrounded it with a moat and walls, and made it his capital after his successful rebellion against the Talaings. None of the successors of Alaungpayā ever used Shwebo as a capital for any length of time; but it was with the aid of men from this District that prince Tharrawaddy displaced Bagyidaw from the throne, and Mindon successfully rebelled against his half-brother Pagan Min; while the Shwebo people maintained their character as king-makers by supporting Mindon against the futile rebellion of the Myingun and Padein princes. When the British force first marched into Shwebo, after the annexation of Upper Burma, the *kayaing wun* (the chief official of the place) submitted with all his subordinates, and greatly assisted the administration by putting down the organized dacoit bands under the leadership of the notorious Hla U and others, which kept the District more or less disturbed for five years after the occupation. A good deal of the western portion of Shwebo then formed a separate District known as Ye-u, which was split up in 1895, the greater part of its area being incorporated in Shwebo.

The principal pagodas are the Shwetaza at Shwebo, the Ingyindaw at Seikkun, the Shwekugyi at Myedu, and the Thihadaw at Kabwet. Shwebo is rich in archaeological remains, as the old walled towns, the ruined shrines, and the inscribed marble slabs that are found scattered all over the District testify; but the country has not yet been thoroughly studied from an archaeological point of view.

The people.

The population increased from 230,779 in 1891 to 286,891 in 1901. Its distribution in the latter year is shown in the table on the next page.

The only town is SHWEBO, the head-quarters. Ye-u is one of the most densely populated townships in Upper Burma; and the other central townships, Shwebo and Kinu, are thickly inhabited, their density contrasting forcibly with that of the Kyunhla township, which occupies the north-west corner of the District. There has been considerable immigration from the Mandalay and Lower Chindwin Districts, and the number of persons born in India who were enumerated here in 1901 was about 2,600. This number constitutes a comparatively small proportion of the representatives of the Indian religions, who in 1901 included 4,300 Musalmāns and 1,600 Hindus. Shwebo town and cantonment contain between 1,000 and

1,500 natives of India; but a large number of the Musalmāns are indigenous Zairbādis, known sometimes as *Myedu kalās*, who are found here and there, especially in what used to be the Myedu township. The majority of the population is Buddhist, and nearly 99 per cent. talk Burmese.

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population in 1901.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Shwebo	450	1	149	51,248	114	+ 12	13,645
Kinu	244	...	120	31,499	129	+ 12	8,113
Sheinmagā	465	...	120	39,255	84	+ 21	8,801
Kanbalu	1,636	...	259	44,783	28	+ 40	10,965
Kyunhla	955	...	84	8,560	9	+ 37	2,598
Ye-u	140	...	140	24,190	173	+ 20	5,595
Tabayin	615	...	221	39,340	64	+ 19	8,956
Tamadaw	598	...	145	19,634	33	+ 42	4,746
Taze	531	...	152	28,382	53	+ 46	7,156
District total	5,634	1	1,390	286,891	51	+ 24	70,575

The Burman population in 1901 was 280,700, or over 97 per cent. of the total. The other indigenous races are represented by less than 1,000 Shans in the northerly areas. Race and occupation.

No less than 216,686, or 75 per cent. of the total population, were in 1901 engaged in, or dependent upon, agriculture. Owing to the frequent failure of the rains, the cultivator has to supplement his income by selling firewood, bamboos, and timber, by extracting resin oil, by making mats and thatch, or by working as a cooly on the railway or on the Shwebo Canal, or as a field-labourer in other Districts; but with the beginning of the monsoon he drifts back to his ancestral fields.

Christians are fairly numerous; their total in 1901 was 2,493, including 1,328 Roman Catholics. The Roman communion has long been at work in the District. It has its head-quarters at Monhla and Chanthaywa, possesses several churches, and ministers to eleven Christian villages, in which it keeps up vernacular schools. The Anglican (S.P.G.) Mission at Shwebo was started in 1887. It maintains a church and an Anglo-vernacular school. Altogether, 1,555 of the Christians are natives. Christian missions.

The soil varies from a stiff black cotton soil to light sand, and the surface from rich ravines annually fertilized by leaf General agricul-

tural conditions. mould washed down from the neighbouring highlands to sterile ridges (*kons*) of alkali and gravel. The rainfall is precarious throughout the greater part of the District, but is fairly reliable in the hilly areas in the north and north-west. The husbandman in Shwebo is as conservative and short-sighted as elsewhere in Burma, and makes rice his main crop, in defiance of the varying soil and the fickle rain supply. On the southern and south-western borders, however, sesamum, millet, and a little cotton are grown; and the alluvial formations of the rivers are covered in the dry season with island crops of various kinds, such as peas and beans, tobacco, onions, brinjāls, tomatoes, gram, and the like. Rice is cultivated in the usual manner, except in the Tabayin and Ye-u townships, where the fields are ploughed dry, and the seed is sown broadcast and left to mature without transplanting.

Chief agricultural statistics and principal crops. The area cultivated depends entirely upon the local rainfall, and thus varies very considerably from year to year. In 1890-1 about 372 square miles were under crop, in 1891-2 only 130 square miles, a total which increased steadily till 1897-8, excluding the bad year 1895-6. There was a large increase in 1899-1900, and by 1900-1 the cultivated area had risen to 645 square miles, but this total fell to 239 square miles in 1902-3. The following are the main agricultural statistics for 1903-4, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Shwebo	450	35	26	2,702
Kinu	244	39	24	
Sheinmagā	465	43	22	
Kanbalu	1,636	132	7	
Kyunhla	955	98	5	
Ye-u	140	13	1	
Tabayin	615	57	5	
Tamadaw	598	55	3	
Taze	531	49	4	
Total	5,634	521	97	2,702

The promise of the early rains caused the increase in 1903-4, but of the total shown above no less than 167 square miles failed to mature. Rice was sown on 432 square miles. Comparatively little *mayin* (or hot-season) rice is grown. Peas of various kinds covered 15 square miles, and sesamum 42 square miles, and 1,200 acres were under cotton, a small area as compared with that in the neighbouring Districts of Sagaing and the Lower Chindwin. Cultivation is increasing

year by year, fallow lands are ever being brought under cultivation; and, but for climatic causes, the increase would have been by leaps and bounds.

Improvements in agricultural practice.

There is not much experimenting in new and untried products. Natives of India have attempted to cultivate gram on alluvial lands, but have failed hitherto, owing to want of rain. American maize and tobacco (Virginia and Havana) were tried on Sheinmagā Island in 1900, and so far as out-turn was concerned they were fairly successful; but they offered no inducement to the husbandman, as their quality was considered inferior to that of the local varieties. Agricultural advances are made regularly, the average for the four years ending 1905 being about Rs. 16,000, but cultivators often find some difficulty in furnishing the required security. Instances in which borrowers have had to share the loan with their sureties have come to light; and it is said that, without some accommodation of this kind, security would often not be forthcoming. Some villages have, however, benefited largely by means of Government loans, and on the whole the advances may be said to be popular.

Cattle, &c.

Oxen and buffaloes are bred in the ordinary haphazard fashion. Not a single bull is kept for breeding. A few half-bred stallions are kept for stud purposes, but they are really unfit for breeding. Sheep and goats are reared exclusively by natives of India, and their numbers are trifling.

Irrigation.

Irrigation is at present effected by means of the old Mu canal and numerous tanks. The former used to take off from the Mu, and crossed several streams which were temporarily dammed and diverted into it, but now only that portion of the canal is kept up which does not intersect the larger waterways. The present catchment area is comparatively small, and the water-supply depends on local rainfall, so that when rain fails the work is of little use. In a favourable year, on the other hand, it gets too full, and fear of a breach of the embankment occasionally makes it necessary to open the sluices, with the result that the water flows over and deluges the already inundated fields. The Shwebo Canal, opened in 1906, has been designed to draw a large quantity of water from the Mu; and as it will be possible to control it effectually, it should prove an invaluable irrigation work. The cost of the work was 51 lakhs, and the area irrigable is 295 square miles. The principal tanks are at Hladaw, Payan, Palaing, Kywezin, Gyogya, Yinba, Pindin, Kanthaya, Yatha, and Taze. Their catchment area, like that of the old Mu canal, is small, and

they depend solely on the rainfall and the drainage from the adjacent country. At certain times they have a reserve of water which may prove really useful, but such occasions are very rare. In 1903-4 about 97 square miles, mostly under rice, were irrigated. Of this total 18,800 acres obtained their water-supply from tanks, 5,000 acres from wells, and 39,100 acres from Government canals. These last had irrigated only 4,000 acres in the previous year (1902-3), the increase in 1903-4 being due to the improvements made in the old Mu canal, assisted by propitious rainfall. The irrigated lands lie almost entirely in the Shwebo subdivision and the Tabayin township. The only two large fisheries are the Bandiba and the Kyauksaung in the Irrawaddy.

Forests. Shwebo is included in the Mu Forest division, which also comprises Sagaing and a part of Kathā. The forests are confined to the north and north-west, and are of two kinds, teak and cutch. In the former, *padauk* (*Pterocarpus indicus*) and *in* (*Dipterocarpus tuberculatus*) are also found to some extent. The Yabin and Kanbalu Reserves are the only ones in the District. In the former the planting of teak, to the extent of a square mile, has been carried out successfully. In the latter experiments have been tried with sandal-wood seed, which germinated well, though the young plants have suffered from the attacks of insects and rodents. The area of 'reserved' forests is 595 square miles, of which 10 square miles are cutch, and the rest teak, with a sprinkling of *padauk* and *indaing*. The area of the unclassed forests is 2,107 square miles; and it has been proposed to convert 83 square miles of these into a cutch Reserve, though the final settlement has not yet been completed. The chief minor forest products are *thitsī* (resin oil), cutch, and bamboos, all of which are abundant. Five Chinese firms are engaged in the cutch trade, and their business is brisk. The forest revenue in 1903-4 was nearly a lakh and a half.

Minerals. Coal was worked from 1892 to 1903 by the Burma Coal Mines Company at Letkokpin, 6 miles from Kabwet on the Irrawaddy, by means of shaftings, the hauling being done by steam. The mines were capable of turning out 2,000 tons monthly, but the Burma Railways Company were the chief purchasers, consuming about 800 tons a month. The mine has now been shut down. A prospecting licence for rubies, gold, and silver has been issued, and leases of land for the purpose of boring for earth-oil have been granted; but though good petroleum has been obtained, the wells, which are in

the Kyunhla township, have been abandoned owing to the unhealthiness of the place. Salt is extracted from brine-wells in the Kanbalu, Shwebo, and Sheinmagā townships. The average earnings of the workers are four annas a day, and the salt produced is used locally, besides being exported to other Districts. Pottery clay exists in places. Gravel, laterite, and sandstone are extracted, mostly by natives of India, to meet local demands on account of public works.

Arts and manufactures. Silk-weaving is carried on at Chiba and Seikkun in the Shwebo township. The produce of the village looms holds its own, in spite of the competition of imported fabrics, which, though cheaper, are far less strong and durable. The method of working is purely Burmese, and the patterns have improved greatly in design of late. For weaving purposes raw silk (Indian or Chinese) is brought from Mandalay, and the articles turned out are mainly *pasos* (waistcloths) of various kinds. Articles other than *pasos* are woven only when special orders have been given. The dyeing of the raw silk is largely done on the spot. The manufacture of pottery is practised all the year round at Kyaukmyaung, Shwegun, Shwedaik, and a few other villages on the Irrawaddy by professional potters; elsewhere it is carried on only during the dry months of the year as a subsidiary occupation by agriculturists. Unglazed pottery is manufactured in the ordinary way from clay mixed with sand, and fired in heaps that are coated with clay. If black instead of the usual red ware is required, bran is poured on the burning heap and the articles are coloured by the smoke. In the manufacture of glazed pottery, the only essential difference is the smearing of the green pots with what is known as *chaw*, the slag left after silver has been extracted from lead ore. The making of glazed pots is a more profitable industry than that of unglazed, as it is attended with less breakage. In the Kanbalu township a considerable section of the population is engaged during the dry season in weaving mats and rough baskets of various kinds. Tantabin is the centre of the mat and basket industry.

Commerce and trade. The principal exports are salt, which is taken by local traders in boats to Kathā from Sheinmagā and Thitseingyi on the Irrawaddy, and cutch, sent by rail to Rangoon by a few Chinese firms which have been established in the District since the opening of the cutch forests. Pulse is sent out in boats by merchants living on the Irrawaddy and the Mu; rice and European goods come in by rail, principally from Mandalay; and sesamum oil in carts from the Sagaing

and Lower Chindwin Districts. Boats fetch tobacco from Sagaing, Myingyan, and Pakokku; *ngapi* (fish-paste) is brought by rail from Mandalay and in boats from the deltaic Districts of Lower Burma; and rice comes by rail from Kawlin and Wuntho in the neighbouring District of Kathā. As the District is poor, the wants of the people are confined for the most part to these main articles of consumption. The chief centres for boats are Kyaukmyaung, Thitseingyi, and Sheinmagā on the Irrawaddy, and Mugan, Sinin, and Ye-u on the Mu. The jaggery sugar from the Ye-u subdivision is exported in carts to Kathā, where it finds a ready sale owing to its damp-resisting properties. Mandalay supplies the raw Chinese or Indian silk used by the silk-weavers of the District.

Means of communication.

The Burma Railway runs through the heart of Shwebo, linking Myitkyinā with Mandalay, and serving the whole District, as from almost every station a road branches out either east to the Irrawaddy or west to the Mu. The Public Works department maintains 48 miles of metalled, and 203 miles of unmetalled roads. The principal metalled roads are from Shwebo to Kyaukmyaung (17 miles), connecting the Mu valley with the Irrawaddy, and from Kinu to Ye-u (13 miles). The most important unmetalled tracks are from Kinu to Kabwet on the Irrawaddy 9 miles below Thabeikkyin, whence an important metalled road climbs to Mogok, the head-quarters of the Ruby Mines District; from Ye-u to Pagā on the Upper Chindwin border; and from Ye-u to Saingbyin on the Lower Chindwin border. The District fund keeps up 86 miles of unmetalled roads. The Irrawaddy is navigable all the year round, and the Irrawaddy Flotilla Company's express and cargo steamers between Mandalay and Bhamo call at Kyaukmyaung and at Kabwet every week in each direction. The ferry steamer plying between Mandalay and Thabeikkyin also calls at those two stations, as well as at Sheinmagā and Thitseingyi, twice a week in each direction. The Mu is navigable in the rains by native craft to the borders of Kathā District. There are five ferries across the Irrawaddy, and eleven across the Mu, at convenient distances from each other.

Famine.

Its capricious rainfall always renders the District liable to partial scarcity, but the only serious failure of crops that has occurred in recent years was in 1891. Ye-u was then a separate District, comprising the present Ye-u subdivision and the Kyunhla township, and it was in the former area that the distress was most acute. It was due to a series of bad harvests

caused by deficient rainfall, and pressed all the more heavily on the people because they had not then fully recovered from the effects of the troublous times that followed close on annexation. Many of the villagers were compelled to sell their cattle to procure food, to resort to roots as a means of subsistence, and to emigrate to the Lower province and to the Ruby Mines District for their living. Relief works were not opened on the east of the Mu, as the railway afforded ample employment there for the able-bodied, but they were started in Ye-u. Advances were liberally made to cultivators to enable them to buy seed and to retain their cattle, partial or total remissions and suspensions of revenue were granted, while rice was imported by Government and distributed at cost price, gratuitous relief was given to the disabled, and the famine was fortunately of short duration.

District subdivisions and staff.

The District contains three subdivisions: Shwebo, Kanbalu, and Ye-u. The first comprises the SHWEBO, KINU, and SHEINMAGĀ townships, the second the KANBALU and KYUNHLA townships, and the third the YE-U, TABAYIN, TAMADAW, and TAZE townships. The subdivisions and townships are in charge of the usual executive officers, under whom are 884 village headmen. Of the latter, 258 are subordinate to circle headmen. Shwebo forms (with Sagaing District) a Public Works division, with two subdivisional officers in the District, and the forests are included in the Mu Forest division.

Civil justice and crime.

As elsewhere, the subdivisional and township courts are presided over by the subdivisional and township officers concerned, but the latter do not try suits relating to immovable property or to any right or interest in such property. At District headquarters, the treasury officer is additional judge of the Shwebo township court as well as head-quarters magistrate. Litigation is normal and crime is on the whole light. Dacoity, murder, and cattle-theft are infrequent, and opium cases are few. Ordinary thefts and excise and gambling cases, for the most part committed in Shwebo town and its suburbs, are, on the other hand, fairly numerous.

Revenue administration.

Prior to the reign of Mindon Min there was no organized scheme of revenue collection in Shwebo; that monarch, however, introduced some kind of system into the methods of the rapacious officials. *Thathameda* was then for the first time levied, royal lands were taxed on a uniform scale of one-fourth of the produce, and imposts were placed on monopolies, carts, fisheries, and other sources of income. After annexation the *thathameda* continued to be levied on much the same system

as before. The land revenue administration is at present in a state of transition. Most of the District is occupied under the ordinary *bobabaing* (non-state) and state land tenures, which are common to all the dry zone Districts of Upper Burma. In the Kyunhla township the conditions were at one time peculiar. Tradition relates that about three centuries ago the country here was waste, and that a number of enterprising hunters from the west of the low range of hills which now separates Shwebo from the Upper Chindwin District, finding the basin of the Mu more promising for cultivation than their own land in the neighbourhood of the Chindwin, moved over and established themselves in what afterwards became the Indaing and Kyunhla *shwehmu*-ships and the Inhla, Mawke, and Mawton *myos*. The descendants of these settlers were known as *tawyathas*, 'jungle-owners' or 'natives,' and they alone acquired absolute ownership of land. Strangers who came afterwards to settle in this area are said to have been able to work land only with the permission of the native who owned it, and when they moved out of one jurisdiction into another they forfeited all claim to their fields. As a general rule, a native who moved elsewhere retained absolute ownership of his holdings, even after severing his connexion with the locality; but in the northern areas of Indauktha, Seywa, and Mettaung he lost his proprietary right when he moved out of his *myo*. These peculiar tenures have now been swept away; the land in the three northern *myos* having been made state land *en bloc*, that in the southern areas being treated partly as *bobabaing* and partly as state. The survey of the District was completed in 1895, in 3,090 square miles out of a total area of 5,634. Settlement operations were commenced at the end of 1900, and are still in progress. The average area of a holding is from 15 to 20 acres. The revenue history of Shwebo presents no marked features, except the continual reductions in the *thathameda* rates of assessment, and the frequent remissions of revenue rendered necessary by the precarious nature of the rainfall. At present only state land is assessed to revenue, the rate being one-third of the produce in the Tantabin and Yatha circles of the Kanbalu township, one-sixth of the produce in the Kyunhla township, Rs. 2 an acre in the Ye-u subdivision, and one-fourth of the produce in the rest of the District. Water-rate is taken from lands which receive water from a Government irrigation work at from R. 1 to Rs. 2-8-0 per acre, according to the fertility of the land irrigated.

The table on the next page exhibits the fluctuations in the revenue since 1890-1, in thousands of rupees. *Thathameda*

is at present the main source of revenue. It rose from Rs. 4,64,000 in 1891 to Rs. 6,11,000 in 1901, but fell to Rs. 5,17,000 in 1903-4.

	1890-1.	1900-1.	1903-4.
Land revenue . .	5	1,22	33
Total revenue . .	5,28	7,83	5,71

The income of the District fund, which provides for various local needs such as roads, *dāk*-bungalows, &c., was Rs. 21,000 in 1903-4, and the chief item of expenditure was Rs. 21,000 on public works. The municipality of SHWEBO is the only one in the District. **Local and municipal government.**

Soon after annexation, both European and native troops were stationed at Shwebo, and at Kyaukmyaung on the Irrawaddy, which, previous to the building of the railway, was the key to the District; and in 1888 a cantonment was established at Shwebo. It is situated to the north-east of the town on high ground and on a very healthy site. With the pacification of the country the native troops were gradually withdrawn, and a reduction followed in the strength of the European troops, who during the last five years have numbered only five companies. Shwebo is the head-quarters of a company of the Upper Burma Volunteer Rifles, drawn from the Shwebo, Kathā, Bhamo, and Myitkyinā Districts. **Army.**

The District Superintendent of police is assisted by subdivisional police officers, who are either Assistant Superintendents or inspectors, and by a head-quarters inspector. The sanctioned strength of the force is 473, consisting of 16 head constables, 37 sergeants, and 420 constables, posted in 13 police stations and 18 outposts. Shwebo is the head-quarters of a military police battalion, and the sanctioned strength of the force serving within the limits of the District is 495, of whom 415 are stationed at Shwebo, 30 at Kanbalu, and 50 at Ye-u. There is a District jail at Shwebo, with accommodation for 237 males and 3 females. Wheat-grinding is the only important industry carried on within its walls, the flour turned out by the prisoners being consumed by the military police. **Police and jails.**

The proportion of literate persons in 1901 was 50 per cent. in the case of males and 2 per cent. in that of females, or 25 per cent. for both sexes together, figures which place Shwebo in the very front rank of the Districts of Burma from an educational point of view. The chief educational institution is All Saints' S.P.G. Mission school at Shwebo. Among the **Education.**

purely vernacular schools, which are mainly responsible for the high standard of literacy, two lay institutions in Shwebo town and two monastic schools at Tabayin and Kanbauk deserve special mention. Altogether there were 11 secondary, 142 primary, and 694 elementary (private) schools in the District in 1904, with a total of 9,175 male and 954 female scholars, as compared with 1,678 pupils in 1891 and 6,583 in 1901. The expenditure on education in 1903–4 amounted to Rs. 12,500. To this total Provincial funds contributed Rs. 9,000, fees Rs. 2,200, subscriptions Rs. 700, and the Shwebo municipality Rs. 600.

Hospitals and dispensaries.

There are 3 hospitals and a dispensary, with accommodation for 62 inmates. In 1903 the number of cases treated was 15,890, including 662 in-patients, and 244 operations were performed. The annual cost is about Rs. 9,500, towards which municipal funds contributed Rs. 3,300 in 1903 and Provincial funds Rs. 4,500, the dispensary being maintained by the railway.

Vaccination.

Vaccination is compulsory within Shwebo municipal limits. The operation is so popular among the people that the number of vaccinators has of late been increased from two to eight for the whole District. In 1903–4 the number of persons vaccinated was 11,799, representing 41 per 1,000 of the population.

Shwebo Subdivision.—Subdivision of Shwebo District, Upper Burma, containing the SHWEBO, KINU, and SHEINMAGĀ townships.

Shwebo Township.—South-eastern township of Shwebo District, Upper Burma, lying between 22° 26′ and 22° 46′ N. and 95° 27′ and 95° 59′ E., with an area of 450 square miles. It stretches from the Irrawaddy on the east to the Mu river on the west, and is flat and dry throughout. The population was 45,713 in 1891, and 51,248 in 1901, distributed in one town, SHWEBO (population, 9,626), the head-quarters, and 149 villages. The area cultivated in 1903–4 was 35 square miles, and the land revenue and *thathameda* amounted to Rs. 1,03,300.

Kinu.—Eastern township of Shwebo District, Upper Burma, extending from the Irrawaddy to the Mu river, between 22° 38′ and 22° 55′ N. and 95° 27′ and 96° 0′ E., with an area of 244 square miles. It is for the most part a level plain, with a low rainfall. The population was 28,107 in 1891, and 31,499 in 1901, distributed in 120 villages, Kinu (population, 2,223), about 12 miles north of Shwebo on the railway, being the head-quarters. The area cultivated in 1903–4 was

39 square miles, and the land revenue and *thathameda* amounted to Rs. 75,900.

Sheinmagā.—South-easternmost township of Shwebo District, Upper Burma, extending from the Irrawaddy to the Mu river, between 22° 11′ and 22° 32′ N. and 95° 32′ and 96° 0′ E., with an area of 465 square miles. It is very dry and almost perfectly level. The population was 32,538 in 1891, and 39,255 in 1901, distributed in 120 villages, the head-quarters being at Sheinmagā (population, 1,544), on the right bank of the Irrawaddy about 25 miles south-east of Shwebo town. The area cultivated in 1903–4 was 43 square miles, and the land revenue and *thathameda* amounted to Rs. 58,100.

Kanbalu Subdivision.—Subdivision of Shwebo District, Upper Burma, containing the KANBALU and KYUNHLA townships.

Kanbalu Township.—North-eastern township of Shwebo District, Upper Burma, lying between the Mu and the Irrawaddy rivers, between 22° 51′ and 23° 44′ N. and 95° 22′ and 96° 1′ E., with an area of 1,636 square miles. The country is dry and flat, and only the south-western corner is at all thickly populated. The population was 31,872 in 1891, and 44,783 in 1901, distributed in 259 villages, Kanbalu (population, 1,003), on the railway, being the head-quarters. The area cultivated in 1903–4 was 132 square miles, and the land revenue and *thathameda* amounted to Rs. 64,300.

Kyunhla.—North-western township of Shwebo District, Upper Burma, extending from the Mu river to the Upper Chindwin District, between 23° 15′ and 23° 52′ N. and 94° 56′ and 95° 33′ E., with an area of 955 square miles. The country is hilly; and the population, which is very sparse, was 6,246 in 1891, and 8,560 in 1901, distributed in 84 villages, the largest of which, Kyunhla (population, 360), close to the west bank of the Mu, is the head-quarters. The area cultivated in 1903–4 was 98 square miles, and the land revenue and *thathameda* amounted to Rs. 25,600.

Ye-u Subdivision.—Subdivision of Shwebo District, Upper Burma, containing the YE-U, TABAYIN, TAMADAW, and TAZE townships.

Ye-u Township.—Central township of Shwebo District, Upper Burma, lying along the bank of the Mu river, between 22° 41′ and 22° 56′ N. and 95° 15′ and 95° 30′ E., with an area of 140 square miles. The population was 20,073 in 1891, and 24,190 by 1901, distributed in 140 villages. Ye-u (population, 2,504) on the Mu river, the head-quarters, was

formerly the head-quarters of a District of the same name. The area cultivated in 1903-4 was 13 square miles, and the land revenue and *thathameda* amounted to Rs. 44,500.

Tabayin.—South-western township of Shwebo District, Upper Burma, extending from the Mu river to the Upper Chindwin District, between 22° 24′ and 22° 49′ N. and 94° 50′ and 95° 34′ E., with an area of 615 square miles. The township is flat in the east, but broken up by low hills in the west. The population was 32,908 in 1891, and 39,340 in 1901, distributed in 221 villages. The head-quarters are at Tabayin (population, 380), about 7 miles west of the Mu, and nearly 25 miles from Shwebo town. The area under cultivation in 1903-4 was 57 square miles, and the land revenue and *thathameda* amounted to Rs. 75,700.

Tamadaw.—Western township of Shwebo District, Upper Burma, on the Upper Chindwin border, lying between 22° 46′ and 23° 8′ N. and 94° 50′ and 95° 23′ E., with an area of 598 square miles. It consists for the most part of broken country with low hills. The population was 13,845 in 1891, and 19,634 in 1901, distributed in 145 villages, Tamadaw (population, 199), a village in the east, being the head-quarters. The area cultivated in 1903-4 was 55 square miles, and the land revenue and *thathameda* amounted to Rs. 48,700.

Taze.—Western township of Shwebo District, Upper Burma, stretching from the Mu river to the borders of the Upper Chindwin District, between 22° 53′ and 23° 22′ N. and 94° 54′ and 95° 30′ E., with an area of 531 square miles. Its western portions are hilly, its eastern flat. The population was 19,477 in 1891, and 28,382 in 1901, distributed in 152 villages, Taze (population, 1,719), a village in the south-east corner, a few miles west of the Mu, being the head-quarters. In 1903-4 the area cultivated was 49 square miles, and the land revenue and *thathameda* amounted to Rs. 53,900.

Shwebo Town.—Head-quarters of the District of the same name in Upper Burma, situated in 22° 35′ N. and 95° 42′ E., on the Sagaing-Myitkyinā railway, 53 miles from Sagaing. The town occupies part of what was once a vast rice plain, the country north, south, and west adjoining the walls being still devoted to rice cultivation; and its surroundings are bare and not outwardly attractive. Away to the east beyond the Irrawaddy can be seen the Shan plateau; while from the same direction a spur of the higher ground that forms the watershed between the Mu and the Irrawaddy runs down almost to the town, and on this spur are placed the present

cantonments. The soil is poor and the water is brackish, so that there is little cause for surprise at the dreariness of the general prospect round Shwebo, and little hope for improvement until an efficient water scheme is in working order. The royal garden at Uyindaw, about a mile north of the town, and a smaller garden about half a mile beyond it, are the only plots of successful arboriculture in the neighbourhood; for the rest, there is little to relieve the eye but the tamarinds and other trees in the urban area. Two conspicuous objects are the Roman Catholic church in the south-east corner of the town and the stone S.P.G. church in the north-west. The condition of the town has improved of late years, a succession of mat-walled, thatch-roofed houses, swept away in periodical conflagrations, having been replaced by more pretentious buildings with carved wooden fronts. The roofs of corrugated iron, if they do not add to the beauty of the town, at any rate contribute to its security from fire. In a few instances large brick buildings have been erected.

The old town of Shwebo is of considerable historical interest, having been the birthplace and capital of Maung Aung Zeya, who seized the throne of Burma under the title of Alaungpayā, and founded the last dynasty of Burmese kings. In 1752 this monarch commenced serious operations against the Talaings, and in 1753 had made such progress that he had himself anointed king at his old home, and then proceeded to lay out and build a town there. This city, known as Moksobo, comprised an outer moat and wall, in the form of a square, over 2 miles each way, which exist to the present day, and a square inner citadel with a side of about 500 yards. Within this citadel was an inner wall, which contained in its turn the palace; but the palace and nearly the whole of the innermost wall have entirely disappeared. Alaungpayā also constructed the Shwechettho pagoda, a shrine still to be seen on the remains of the north inner wall; the *bahosin* in front of the palace, on which was hung the big drum for beating the hours; the *natsin* or spirit shrine of the nine evil spirits whom all kings feared and propitiated; and a royal lake north of the town. The *natsin* still stands near the south of the jail, and the lake is the Mahananda. The present town of Shwebo just includes the fringe of the eastern portion of the old town of Moksobo.

After building the town described above, Alaungpayā turned his restless ambition towards Siam, but died during the course of a campaign in the south. His remains were brought back

to Moksobo, and interred in the year 1760 near the entrance to the present courthouse. He was succeeded by his eldest son, who assumed the title of Naungdawgyi, and whose successor and brother Sinbyushin, after reigning for two years at Moksobo, moved the capital to Ava in the year 1766, taking with him some of the famous Moksobo soil. The town then began to decline, till 1837, in the reign of king Bagyidaw, when this monarch's brother, who was prince of Thayetmyo and Tharrawaddy, changed the name from Moksobo to Shwebo. In the same year he conspired against his elder brother and seized the throne. From the earliest days of its greatness the town had been named Yangyi-aung or 'the victorious,' and to use Shwebo as a base of operations was thought to be a guarantee of success in an enterprise. Accordingly, in 1852 king Tharrawaddy's son, Mindon, came to Shwebo when maturing his designs on the throne, which culminated in a successful conspiracy against his brother Pagan Min. Again, in Mindon's reign his nephew, the Padein prince, came to Shwebo, and plotted for his uncle's overthrow, but on this occasion the proverbial luck of the city failed. It may be said, however, that the use of Shwebo as a capital ceased 140 years ago.

Immediately after the annexation of Upper Burma a detachment of British troops came up to Shwebo, but returned almost immediately to Mandalay. This withdrawal stimulated the rebels who were abroad in the land, and a confederacy of dacoit gangs, under a leader known as Mintha Hmat, devastated the town. On this the British troops returned and have held the place ever since.

The population of the town was 9,368 in 1891, and 9,626 in 1901, the majority being Burmans. The Indian colony consists of 700 Musalmāns and more than 600 Hindus, about half of whom are military followers and other residents of the cantonment. The Christian population exceeds 1,000. A large proportion of the inhabitants are agriculturists, the rest work at the usual petty trades and crafts of the urban areas of Upper Burma. There are many special industries for which villages in the District are famous, but from an industrial and artistic point of view Shwebo itself is inconspicuous. A local blacksmith trained in France does excellent work in steel and iron. He and his pupils, however, are the only artisans who have endowed Shwebo with anything approaching an industry of its own.

The town was constituted a municipality in 1888. The receipts and expenditure during the ten years ending 1900-1

averaged Rs. 20,000. In 1903-4 the income was Rs. 36,000, of which bazar rents contributed Rs. 19,700, and a house and land tax Rs. 4,400. The expenditure amounted to Rs. 41,000, the chief ordinary items being lighting (Rs. 4,000), conservancy (Rs. 4,700), and roads (Rs. 11,500). The municipality contributes Rs. 600 annually to the S.P.G. Anglo-vernacular school, besides which there are two good lay schools. The municipal hospital has accommodation for 45 in-patients. The income and expenditure of the cantonment fund in 1903-4 was Rs. 6,000.

Boundaries, configuration, and river and hill systems.

Sagaing District.—District in the Sagaing Division of Upper Burma, lying between 21° 29′ and 22° 15′ N. and 95° 9′ and 96° 4′ E., with an area of 1,862 square miles. It lies across the Irrawaddy, and is bounded on the north by the Lower Chindwin and Shwebo, on the east by Mandalay and Kyaukse, on the south by Myingyan, and on the west by Pakokku and the Lower Chindwin. Sagaing has for its size an exceptional length of navigable waterways within its limits. About 10 miles below Mandalay the Irrawaddy, after skirting the District for more than 20 miles, turns abruptly from the southerly course it has been pursuing and makes a considerable bend westwards across the plain, till it receives the waters of the Mu from the north, after which it begins to turn southwards again as it quits the District. Its westerly course, which begins immediately below Sagaing town, cuts the District into two portions, one north and one south of the channel, the former comprising about two-thirds of the whole. The northern section contains the Sagaing township on the east and the Myinmu, Chaungu, and Myaung townships on the west; the southern is made up of the Tada-u and Ngazun townships. At the south-west corner the Irrawaddy approaches close to, and in the rains is connected by various waterways with the Chindwin, which for some distance forms the western border of the Myinmu subdivision. The eastern boundary of the same subdivision, separating it from the Sagaing subdivision, is the Mu, which flows southwards from Shwebo into the Irrawaddy, a few miles east of Myinmu village. There are two main hill ranges. The first is the barren Sagaing ridge, which is covered with sparse stunted vegetation, and dotted with white-washed pagodas, and runs parallel to the Irrawaddy from Sagaing town up to the northern border of the District, reaching its highest point in the Mingun hill (1,341 feet). The second is a compact cluster of hills lying in the centre of the southern edge of the District on the

Myingyan border, at the junction of the Tada-u and Ngazun townships, and culminating in the Mozataung (1,474 feet). All over the District are other patches of rugged elevated country, notably in the north-west on the Lower Chindwin border, and in the country west of Myotha.

The general aspect of the country is very diversified, ranging from rich alluvial soil to barren hills. Along the rivers, where the channel bank is frequently higher than the country behind, the land is flat and low-lying and is inundated yearly. These alluvial riparian levels are very rich and productive, and the Irrawaddy itself is full of islands which emerge, silt-laden, from the current at the close of each rainy season and are thus perennially fertile. In the Sagaing township, immediately to the west of the railway, is a large depression called the Yemyet lake, which after heavy rain is occupied by a sheet of water covering an area of 10 miles north and south, and 3 miles east and west, but is almost dry during the hot season. There are numerous *jhīls* in the neighbourhood of the Irrawaddy and Chindwin, and a small salt-water lake at Yega, a few miles north of Sagaing town.

Geology. Nearly the whole of the District is covered with alluvium, from beneath which a few patches of soft sandstone of Upper Tertiary (pliocene) age appear, forming low undulating hills. As in Shwebo District, these sandstones are brought down by a great fault against the crystalline rocks—gneiss, granite, and crystalline limestone—which form the narrow ridge of hills running along the western bank of the Irrawaddy. This ridge disappears beneath the alluvium at Sagaing town, where the river breaks across it.

Botany. The hilly tracts are mostly covered with thick scrub jungle; in waste places on low land, as at Nabegyu on the Mu and in the east of the Tada-u township, the jungle becomes forest, with many large trees and thick undergrowth and creepers. The following are some of the most common trees: *Bauhinia racemosa*, *okshit* (*Aegle Marmelos*), *nyaung* (*Ficus indica*), common cassia of various kinds (*mezali*, *ngugyizat*), *Terminalia belerica*, *Zizyphus Jujuba*, *tanaung* (*Acacia leucophloea*), *Anthocephalus sp.*, *sha* (*Acacia Catechu*), *Lagerstroemia parviflora*, *kokko* (*Albizzia Lebbek*), *letpan* (*Bombax malabaricum*), the tamarind, which grows to a very large size, the toddy-palm (*Borassus flabellifer*), and the mango. The produce of the fruit trees is collected and sold in the bazars. The Chinese date, the *in*, the *ingyin*, the *pyinma*, the *padauk*, and the *thitya* may also be mentioned.

Fauna.

The larger kinds of wild animals are not found in great numbers; those that frequent the District include the leopard, the jackal, the hog, the *thamin* or brow-antlered deer, the hog deer, the barking-deer, and the hare. There are no tigers, bears, or *sāmbar*, and it is only occasionally that elephants come down from the Lower Chindwin and Shwebo hills into the District. Duck, geese, and snipe abound in the cold season, and at certain times of the year partridge and quail are plentiful.

Climate, temperature, and rainfall.

Sagaing town is one of the most picturesque, and appears also to be one of the healthiest and coolest, places in the plains of Upper Burma. The sick-rate of the troops while they held the town, and that of the military police since that time, has always been remarkably low. Only two months, April and May, are really hot, and even during these the mean maximum is under 102°, while the average ranges from 76° to 100°. In the winter the temperature oscillates between 60° and 80°. During the rains high south winds sweep across the country, and keep the air cool and pleasant. The great body of water that passes through and around the District probably prevents the thermometer from rising as high in the most oppressive months as it otherwise would. The hot season is not distinguished by persistent sultry winds, though gales of great violence blow occasionally. The end of the rains and the early cold season, when very heavy fogs hang till late in the day all along the Irrawaddy, are the least healthy seasons of the year; but the District as a whole is not insalubrious, and has no fever-haunted hills or *tarai*. No cyclones, earthquakes, or exceptional floods have occurred within memory. The rainfall for the whole District averages about 30 inches per annum, but varies considerably from tract to tract. In 1889, for instance, although the total fall in Sagaing itself exceeded by 5 inches the aggregate of the preceding year, elsewhere, notably in the north of the Sagaing subdivision and the south of the Chaungu and Ngazun townships, it was very short.

History.

Up to the time of annexation the history of the District outside Sagaing town and Ava has no special features. From time immemorial it has always been a part of the kingdom of Burma, whether centred at PAGAN, AVA, or SAGAING. After the surrender of king Thībaw, in November, 1885, a column marched from Mandalay to Myingyan through Ava, where it was joined by the *taunghmu* or jailor of Ava, who did good service in the fighting that followed. The fort at Sagaing was occupied as early as December, 1885; but regular administration was not introduced at once, and for two years

the District was one of the most turbulent in the Province. Outside the two posts at Sagaing and Myinmu it was in the hands of dacoits, who terrorized the village headmen, and two British officers were killed near Sagaing during the first months of occupation. There were several bands of rebels, the most notorious leader being Hla U, who was a scourge to the country round Myinmu. The old Ava subdivision, comprising the present Tada-u and Ngazun townships, then a separate District, was equally disturbed, the followers of a man named Shwe Yan giving most trouble there. The building of outposts at Myotha and Myinthe, followed by active operations, drove Shwe Yan across the Panlaung in April, but later he took up his head-quarters in the country between the Panlaung and its tributary the Samon. In 1887 the state of the District was no better, and on both sides of the river the country was practically in the hands of the dacoits. Great efforts were made to capture Hla U, but none of them succeeded, and he was ultimately murdered by one of his own followers. His lieutenants, chief among whom were Nyo U, Nyo Pu, and Min O, soon gathered strength, and before long had succeeded in making the country as disturbed as ever. On the Ava side Shwe Yan openly defied the authorities, and two British officers were killed in an engagement with him. Finally, in 1888, military operations on a larger scale were begun under the late General Penn Symons; and though no great measure of success appeared at first to attend them, the resistance to authority slowly weakened, and the strict observance of the Village Regulation by which villages were punished for not resisting the dacoits, and suspicious persons were removed from their local spheres of influence, gradually led to the pacification of the country. By the end of 1888 no less than 26 dacoit leaders, including Shwe Yan, had been killed, and 26 captured, and most of their followers had come in and were disarmed. Since that date the District has given no trouble. The Ava District was amalgamated with Sagaing early in 1888.

Archaeology.

The ancient capital of Ava is described in a separate article. Pinya and Myinzaing to the south of Ava in the Tada-u township are also old capitals. The pagodas, both in the neighbourhood of Sagaing and throughout the District, are exceedingly numerous, especially on the barren hills that follow the Irrawaddy on its western bank. By far the best known is the Mingun pagoda, begun by Bodawpayā in 1790 and continued till 1803, but never completed. This huge relic of the glories of the Alaungpayā dynasty, which was intended to eclipse all

previous records in pagoda building, is situated on the right bank of the Irrawaddy opposite a point 6 or 7 miles above Mandalay, and is one of the largest solid masses of brickwork known to exist. Only the two lions at the eastern entrance, five walled terraces, and the base of the pagoda had been completed, when an earthquake in 1839 wrecked the lions and cracked the building from top to bottom. Work on it was never resumed after the catastrophe. The present height of the ruin is 130 feet; but, calculating from the model near, it would, when completed, have been about 555 feet in height. Close to it is the famous Mingun bell, the largest bell hung in the world. It is 12 feet high and 16½ feet in diameter at the mouth, and its weight is about 90 tons. More interesting from an archaeological point of view, but less famous than the bell and the ruin, is the Sinpyushin pagoda not far off, built about A.D. 1359, and restored by the queen by whose name it is known. It represents the Myinmo mountain and rises in tiers, on each of which are niches filled with images representing various members of the celestial hierarchy, many of which have been broken or stolen by profane excursionists. The pagoda most reverenced, however, is not the Mingun shrine but the clumsy Yazamanisula or Kaunghmudaw, which raises its almost hemispherical shape from the plain about 5 miles to the north-west of Sagaing. This royal work of merit has achieved so wide a notoriety throughout Indo-China that a miraculous origin has been ascribed to it, despite an inscription at its base, which testifies to its having been built by Thalunmintayāgyi, king of Ava, in 1636. The shrine benefits by the revenue of *wuttugan* lands in its neighbourhood, and has an annual festival. The trustees who manage its affairs keep it in good order. Periodical festivals are held at other pagodas, including the Ngadatgyi, in the south-western suburbs of Sagaing, a shrine founded in 1660 and containing a large masonry figure of Buddha; the Shinbinnangaing and Shwemoktaw pagodas, dating from the tenth century; and the Onminthonze, a crescent-shaped colonnade on the side of the Sagaing hills overlooking Sagaing, with thirty arches containing forty-four figures of Gautama Buddha.

The people.

The population increased from 246,141 in 1891 to 282,658 in 1901. Its distribution in the latter year is given in the table on the next page.

SAGAING, the head-quarters of the District, is the only town. The density of population, 152 persons per square mile, bears comparison with the most thickly populated Districts of Lower

Burma—Henzada and Hanthawaddy. It is far in excess of the density of the Sagaing Division as a whole (only 33 persons per square mile), and is higher than that of any other District of Upper Burma. Burmans have immigrated in considerable numbers from Mandalay, Myingyan, and Lower Chindwin Districts. More than 99 per cent. of the inhabitants speak Burmese, and all but 2 per cent. are Buddhists.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Sagaing	485	1	211	77,578	160	+ 16	21,362
Tada-u	310	...	157	46,661	151	+ 1	12,074
Myinmu	286	...	86	41,256	144	+ 5	9,581
Chaungu	177	...	88	33,134	187	+ 10	6,019
Myaung	246	...	79	31,497	128	+ 25	7,018
Ngazun	358	...	169	52,532	147	+ 17	12,215
District total	1,862	1	790	282,658	152	+ 15	68,269

Race and occupations.

The population is almost wholly Burmese, the Burman aggregate in 1901 being 278,500 or 98 per cent. of the total. Musalmāns numbered 1,800, and Hindus 930. Of these, 1,300 were Indians. Zairbādis are plentiful in Sagaing town, and in the interior of the District: as, for instance, at Ywathitgyi, a large village on the Irrawaddy about half-way between Sagaing and Myinmu, where communities of Musalmān Burmans show no signs now of any Indian admixture. A large proportion of the non-immigrant Hindus are Ponnas or Manipurīs, who have a quarter of their own in Sagaing town. The Census of 1901 showed 163,785 persons directly dependent on agriculture, or only 58 per cent. of the population, as compared with 66 per cent. for the Province as a whole.

Christian missions.

In 1901 there were 748 native Christians, most of them Roman Catholics, centred round the missions at Chaungu and Nabet, who are said to be descended from Portuguese and other prisoners captured at Syriam in the seventeenth and eighteenth centuries. The American Baptist Union has a mission and church at Sagaing, but the number of Baptist converts is not large.

General agricultural conditions.

There is great diversity in the nature of the country as well as in the methods of cultivation, especially in the north-west, which presents large stretches of rice land dependent on the rainfall for its success. The Myinmu township consists chiefly of plateaux and undulating uplands. In the western half of

the Chaungu and in the Myaung township, in the wedge-shaped area formed by the junction of the Irrawaddy and Chindwin, large tracts are subject to yearly inundation, and the richest lands are found here. The Ngazun township is dry and undulating, while to the south of Ava the country consists chiefly of level black cotton soil.

Various distinct kinds of cultivation are carried on. Wet-season rice is grown on land falling into two separate categories: namely, land submerged by the annual rise of the river (*ye-win-le*), and land beyond the reach of inundation (*mogaung-le*). In July and August nurseries are sown on the higher lands in the inundated tract, and when the river begins to fall after the highest rise the planting of the seedlings is taken in hand. In uninundated land nurseries are sown from the end of June through July, and are planted out in August and September. The crops begin to ripen in November, and the harvest continues till after Christmas. Dry-season (*mayin*) rice is grown wherever sufficient water remains in the hollows along the river bank when the floods have subsided. Nurseries are sown in December, planting out begins in January, and the crop is ready for reaping towards the end of April. 'Dry' or *ya* cultivation is practised on the poorer kinds of uninundated land, and is mainly composed of three chief crops, sesamum, millet, and cotton. Early sesamum, a somewhat precarious crop, is grown but little. Late sesamum, on the other hand, is the most largely cultivated of all staples in the District, though the plant is delicate and is apt to suffer from lengthy drought towards the end of September and during October. Millet (*jowār*), sown towards the end of July and throughout August, is ready for cutting by the end of January and till near the end of February. It is cultivated almost as much for the sake of its stalk, which affords excellent fodder for cattle, as for its grain, which is used for human consumption only in the poorest parts of the District. Cotton is sown after the early rains in May, and picking begins in October. Wheat is also an important crop. It is grown in *sane*, the level rich black soil of the Sagaing and Tada-u townships, in November. It ripens about the beginning of March, and is always of the bearded variety. The *sane* soil is suitable also for oats, linseed, gram, and other staples.

Various miscellaneous crops are grown on alluvial and inundated land, and are classified together under the head of *kaing* cultivation. These are very numerous, the commonest being pulse of various kinds, such as gram, *pegya*, *sadawpe*, *peselon*, and *matpe*. The *kaing* lands are ploughed up before

the river rises, so that the moisture may penetrate as deep as possible. When the water falls and they are sufficiently dry again they are usually harrowed, and sowing commences in October. The harvest is gathered in March. Onions, tobacco, maize, chillies, sweet potatoes, and indigo are grown on these lands, but the areas under these crops are small.

Chief agricultural statistics and principal crops.

The total area under cultivation was 372 square miles in 1891, and 473 square miles in 1901. For 1903-4 the main agricultural statistics are shown in the following table, the areas being in square miles :—

Township.	Total area.	Cultivated.	Irrigated.
Sagaing . . .	485	177	2·30
Tada-u . . .	310	117	4·37
Myinmu . . .	286	120	0·56
Chaungu . .	177	96	1·76
Myaung . . .	246	96	0·17
Ngazun . . .	358	164	1·60
Total	1,862	770	10·76

Sesamum covered 210 and millet 184 square miles in 1903-4, while the comparatively small area of 148 square miles was under rice, 19 square miles being dry-season rice. The greater part of the entire wheat crop of Burma is grown in this District, the area being 32 square miles; peas in the same year covered 119, gram 17, and cotton about 67 square miles. This last crop is grown for the most part in the Tada-u and Ngazun townships, on the high ground which extends into Meiktila and Myingyan Districts; and after Myingyan, Sagaing shows the largest cotton acreage in the Province. Gardens covered only 1,100 acres in the neighbourhood of Sagaing town and the large villages of the District, and tobacco 2,500 acres.

Improvements in agricultural practice.

The cropped area is steadily and rapidly increasing in extent, its growth being only retarded temporarily by a bad season. The quality of the cultivation is much the same as it has been from time immemorial, and the introduction of new kinds of seed is regarded by the Burman more as a curiosity than anything else. Experiments with American tobacco, Egyptian cotton, and other non-indigenous varieties of seed have been made, but none has met with marked success. Except in 1902-3 no agricultural advances have been made during the past few years to cultivators.

Cattle, &c.

There are no special breeds of cattle, except on a small stock farm at Myinmu, where Madras bulls have been placed for

breeding purposes, though with little result. The ordinary Burmese bulls and buffaloes are used for ploughing; and sheep and goats are bred in fair numbers, chiefly by Indians and Chinese, who buy in the District cheap and sell at a profit in Mandalay. Goats are freely used for milch purposes. Pony-breeding is not extensive. Stallions are kept here and there, their owners taking them round to adjacent villages, and letting them out on hire at fees ranging between Rs. 5 and Rs. 10. The ponies in Chaungu appear to be strong and hardy, and it is said that the military police detachment in Monywa buy most of their animals there. Pig-breeding is carried on in certain localities. Grazing-grounds are sufficient for all requirements, and there is no difficulty in feeding the cattle.

Irrigation. The only irrigation works of importance are tanks, mostly small. The chief are the Kyaungbyu, Taeinde, Pyugan, and Obo-tamayit tanks, all in the Sagaing township, the Kandaw tank in the Myinmu township, and the Kandaw-Kanhla in the Tada-u township. On the right bank of the Mu a powerful steam-pump was set up a few years ago by a European grantee to irrigate his grant, and the results are said to have been good. The total area irrigated in 1903–4 was distributed as follows: from tanks, 3,400 acres; from wells, 2,100 acres; total, 6,900 acres, nearly all under rice. There are numerous fisheries in the neighbourhood of the channels of the Irrawaddy and Chindwin. The most important are the Tande fishery in the Sagaing township near the Kaunghmudaw pagoda, the Maungmagan fishery in the Sagaing township near Byedayaw village, the Sindat-Gaungbo-Myitton fishery in the Sinbyugon circle of the Ngazun township, the Twingya fishery in the Ngazun township, the Inmagyi-Komachaung fishery in the Myinmu township, and the Taunggaw fishery in the Chaungu township. They are sold by auction, and produced a revenue of Rs. 58,700 in 1903–4.

Forests. No forests are 'reserved' or protected in the District, but the timber-collecting stations at the mouth of the Mu and the Myintge are within its limits. On parts of the low-lying land are found stretches of timber growth the constituents of which have been enumerated under Botany. Except for cutch, however, they contain little of economic value.

Minerals. Limestone is extracted at the foot of the Sagaing hills, and is burnt in two villages, one on the outskirts of Sagaing town and the other a few miles above Mingun on the river bank. The industry is not a thriving one, and the annual profits of a lime-burner nowadays are said to average only about Rs. 200. Copper has been found in small quantities in the Sagaing hills,

but has never been systematically worked. Clay suitable for pottery and brick-making is found here and there, and in the Sagaing township a little salt is produced.

Arts and manufactures.

There are gold- and silversmiths at Sagaing, Ywataung, and Wachet. Brass-workers ply their trade in the same towns and a few of the larger villages, and convert sheets bought in the Mandalay bazar into spittoons, betel and lime boxes, drinking cups, filters (*yesit*), bowls, and trays. The local blacksmiths obtain their iron in the bazars, and manufacture *das*, axes, pickaxes, scythes, ploughs, wheel-tyres and similar articles. The shaping from local sandstone of *kyaukpyins*, the round flat stones used for grinding *thanatka* (a vegetable cosmetic), gives employment to a number of persons in Kyaukta village in the east of the Sagaing township. The finished articles are taken for the most part to Mandalay for sale. In and near Sagaing reside several sculptors of figures of Gautama, which are hewn from the white marble brought from the Sagyin hill in Mandalay District. The artificers go to the quarries and buy their rough material on the spot ready shaped into approximately conical blocks, bringing it over to Sagaing by cart and boat. The images are usually well finished, but the design is stereotyped and tasteless. For some years past the sculptors have been one by one attracted to Mandalay, where the expenses of procuring the rough stone are lighter, and a readier sale for their work is obtained. Ordinary rough red earthenware waterpots are made in the neighbourhood of Sagaing and elsewhere throughout the District. At Myitpauk, a village on the river just below Myinmu, the common red earthenware is glazed a dark green and brown to prevent percolation. Sugar-boiling is practised wherever there are sufficient toddy-palm trees to make the industry pay. Cutch-boiling used to be a regular source of employment, but the industry is now almost moribund. Silk-weaving is common, the silk employed coming from China or Siam. The Sagaing silks are famous; and sometimes from 100 to 150 shuttles are used in weaving a *luntamein* or a *lunpaso*, the design in which is so elaborate that not more than 1 inch width of the pattern can be woven in a day. A *tamein* (skirt) of this kind costs from Rs. 12 to Rs. 15; a *paso* (waistcloth) from Rs. 100 to Rs. 150. The weaving is all done by hand. There are, in fact, no factory industries whatever in the District. Salt-boiling is carried on systematically only in two villages, Sadaung and Yega in the Sagaing township. In the former wells are sunk to obtain the brine; in the latter salt is obtained by evaporating the

water of a small lake. Lacquer-work is done in some of the quarters of the old town of Ava, but in quality it is inferior to that produced in Myingyan District.

The chief exports are cleaned cotton, sesamum and its oil, wheat, gram and pulses, tobacco, onions, maize and maize husks, sweet potatoes, and indigo. The cotton trade is chiefly in the hands of Chinamen, who have set up numerous hand-gins at Kyauktalon, Ywathitgyi, Ondaw, and other villages in the cotton-growing area. The cleaned product is carried by river, the good quality to Bhamo for transmission to China, the inferior to Rangoon for shipment to the Straits Settlements. From the east of the District some of the villagers take their own oil and indigo to Mandalay, but most of the two latter products, and nearly all the maize, is shipped down the river to Pakokku. Fruit—mangoes, guavas, oranges, limes, tamarinds, pineapples, and melons—is sold to passing steamers, or taken in small quantities to Mandalay. Commerce and trade.

The imports comprise rice, dried fish, *ngapi*, pickled tea, salt, betel-nuts, coco-nut oil, petroleum, timber, bamboos, iron and hardware, crockery, piece-goods, raw silk, miscellaneous articles of European make, and liquor. Among the chief centres of trade, besides Sagaing town, are Tada-u, through which most of the surplus produce of the middle of the Tada-u township passes on its way to the river; and Kyauktalon and Ywathitgyi, river stations for the inland parts of the Ngazun and Sagaing townships. The produce from the Myaung and the south of the Chaungu township finds its exit to the river at Nagabauk, in the extreme south-west corner of the District; that from the west of Chaungu chiefly at Amyin in the north-west, but most of the trade of these two townships passes through Chaungu and thence to Myinmu. The road from the latter town to Monywa has hitherto been the route of a considerable transit trade with the Chindwin. Probably the railway will now divert most of it via Sagaing.

The Sagaing-Myitkyinā railway, starting from the Irrawaddy bank at Sagaing town, runs northwards along the eastern edge of the District for about 24 miles, having four stations within its limits. From the first of these, Ywataung, a branch leads off almost due west to the Chindwin, entering the Lower Chindwin District near Chaungu, between 50 and 60 miles from Sagaing. After leaving Ywataung it has ten stations in the District. A good deal of the interior of the District is thus brought into touch with both the Irrawaddy and Chindwin. These two rivers are navigable for all traffic up to large river Means of communication.

steamers, the Irrawaddy Flotilla Company providing bi-weekly communication on the Irrawaddy with all down-river ports, and daily communication with places between Mandalay and Myingyan. The railway company provides the steam ferry between Sagaing and Amarapura Shore, connecting the Myitkyinā extension with the main railway system of Burma. Country boats go up the Panlaung, Myitnge, and Samon rivers into the interior of Mandalay and Kyaukse Districts, and in the rains the Mu river is navigable for light country traffic into Shwebo District. An old highway, called the Minlan, follows the Samon valley from Ava to the south, but is now falling into disuse. Since annexation a road has been made from Myinmu on the Irrawaddy to Monywa on the Chindwin. Minor roads are those from Myotha to Kyauktalon on the left bank of the Irrawaddy near Ngazun, affording access to the river from a fine cotton country; from Chaungwa in the south-east towards Kyaukse, from Tada-u to Myotha, from Padu to Sadaung in the north-east, and from Ywathitgyi to Legyi near the centre of the District. Exclusive of the roads in Sagaing town, 263 miles of road are kept up, of which 65 miles are maintained by Provincial revenues and 198 miles by the District fund. There are a number of ferries across the Irrawaddy and Chindwin.

Famine. So much of its area is watered by the Irrawaddy and Chindwin, and is thus rendered in a measure independent of its rather meagre rainfall, that the District, as a whole, can be depended upon to produce enough food as a general rule to prevent a famine. A drought, however, is bound to occasion at least local scarcity; and in 1891–2 it was found necessary, owing to a failure of crops, to open relief works and spend about Rs. 9,000 in helping the inhabitants of the affected tracts. Scarcity was threatened towards the end of 1903, but some opportune showers in September saved the situation. The District can never be wholly free from a calamity such as seemed imminent in 1903, but its communications, by both land and water, are so ample that the distress need never assume alarming proportions.

District subdivisions and staff. For administrative purposes the District is divided into two subdivisions: Sagaing, comprising the SAGAING and TADA-U townships; and Myinmu, comprising the MYINMU, CHAUNGU, MYAUNG, and NGAZUN townships. The subdivisions and townships are under the usual executive officers, assisted by 389 village headmen, to 29 of whom have been given special criminal powers under the Upper Burma Village Regulation, and to

46 special civil powers under the same enactment. At head-quarters are a treasury officer, an *akunwun* (in subordinate charge of the revenue), and a superintendent of land records, with a staff of 8 inspectors and 80 surveyors. There are no superior Forest and Public Works officers in the District, which forms a portion of the Mu Forest division and constitutes a subdivision of the Shwebo Public Works division.

Civil justice and crime. The subdivisional and township officers preside in the respective subdivisional and township courts (civil and criminal), but the Sagaing township officer is assisted in his civil duties by the head-quarters magistrate, who is *ex officio* additional judge of the township court. Crime is of the ordinary type, and there is a good deal of litigation in the District.

Revenue administration. During the last years of Burmese rule the revenue consisted of *thathameda* and a land tax at the rate of one-fourth of the gross produce, assessed by *thamadis* (specially selected village elders), and paid in money at the market rate; but the greater part of the lands were held by members of the royal family or by servants of the government, and were not assessed. At annexation the existing revenue system was continued and applied to all state land, an exception being made in the case of certain *wuttugan* or religious lands which paid preferential rates of one-eighth or one-tenth of the gross produce. On non-state lands a water-rate was levied on irrigated land only. Settlement operations were commenced in 1893 and completed in 1900, the rates proposed being first levied in the agricultural year 1903-4. On inundated land cold-season rice is now assessed at from Rs. 1-8 to Rs. 3-6 per acre, *mayin* (hot-season) rice at from R. 1 to Rs. 3, and *kaing* crops (onions, beans, &c.) at from R. 1 to Rs. 5-4 per acre. Wheat pays from 6 annas on the most unfavourable *yas* (uplands) to Rs. 2-8 per acre on the best rice land, unirrigated rice from 6 annas to Rs. 2. Other crops on upland tracts are assessed at from 6 annas to Rs. 2-8. The rate for toddy-palm groves is Rs. 4, that for mixed orchards Rs. 8, and that for betel-vineyards Rs. 20 per acre. The rates on non-state land are generally three-fourths of those stated above, which are levied on state land.

The following table shows the growth of the revenue since 1890-1, in thousands of rupees :—

	1890-1.	1900-1.	1903-4.
Land revenue . .	67	1,01	5,19
Total revenue . .	6,44	7,74	9,48

The increase in the land revenue between 1900–1 and 1903–4 is due to the introduction of the acreage rates referred to above. The *thathameda* showed a corresponding decrease from Rs. 5,71,000 to Rs. 2,74,200.

Local and municipal government. The District fund, for the provision of roads and other local needs, had an income of Rs. 53,000 in 1903–4, the chief item of expenditure being Rs. 47,000 on public works. SAGAING is the only municipality.

Police and jails. The two subdivisions are each in charge of an inspector of police, and there are 10 police stations and 5 outposts in the District. The civil force consists of 4 inspectors, 9 head constables, 28 sergeants, and 296 rank and file, including 23 mounted men. The military police, who belong to the Shwebo battalion, number 85. There are no jails or reformatories. Prisoners are sent on conviction to the Mandalay Central jail, and those under trial are kept in a lock-up close to the courthouse.

Education. The proportion of persons able to read and write to the total population of the District in 1901 was 48 per cent. in the case of males, and 3 per cent. in that of females, or 24 per cent. for both sexes together; but the educational standard is really higher than these figures would appear to show. The *pongyis* of Sagaing are as a whole exceptionally enlightened and progressive, and many of the lay schools are above the average. The total number of pupils was 7,254 in 1890–1, 12,672 in 1900–1, and 12,665 in 1903–4, including 1,421 girls. In the last year there were 10 special, 7 secondary, 147 primary, and 987 elementary (private) institutions. The more notable institutions are the municipal Anglo-vernacular school in Sagaing town, now maintained by Government, and the vernacular secondary schools in Sagaing town and at Sungyet, Allagappa, and Myotha. The total expenditure on education in 1903–4 was Rs. 18,400, to which Provincial funds contributed Rs. 16,100, municipal funds Rs. 2,300, and fees Rs. 2,100.

Hospitals and dispensaries. Four hospitals are maintained from public funds and two dispensaries by the railway company. The former have accommodation for 88 in-patients. In 1903 the number of cases treated was 22,270, including 703 in-patients, and 430 operations were performed. The total income of the four hospitals was Rs. 10,700, towards which municipal funds contributed Rs. 5,000, Provincial funds Rs. 5,100, and subscriptions Rs. 6,000.

Vaccination. Vaccination is compulsory only within the limits of the

municipality of Sagaing. In 1903-4 the number of successful operations was 8,207, representing 28 per 1,000 of the population. Vaccination is popular, and no opposition is met with in the rural areas.

[L. M. Parlett, *Settlement Report* (1902).]

Sagaing Subdivision.—Subdivision of Sagaing District, Upper Burma, containing the SAGAING and TADA-U townships.

Sagaing Township.—Township of Sagaing District, Upper Burma, between the bend of the Irrawaddy on the east and the Mu river on the west. It lies between 21° 50′ and 22° 15′ N. and 95° 38′ and 96° 4′ E., with an area of 485 square miles. The township is level throughout, save for a fringe of low hills running parallel to the Irrawaddy up its eastern edge. The population was 66,989 in 1891, and 77,578 in 1901, distributed in one town, SAGAING (population, 9,643), the head-quarters, and 211 villages. The area cultivated in 1903-4 was 177 square miles, and the land revenue and *thathameda* amounted to Rs. 1,97,500.

Tada-u.—South-eastern township of Sagaing District, Upper Burma, stretching southwards from the Irrawaddy, between 21° 29′ and 21° 55′ N. and 95° 44′ and 96° 2′ E., with an area of 310 square miles. The population was 39,477 in 1891, and 46,661 in 1901, distributed in 157 villages, the head-quarters being at Tada-u (population, 1,327), a thriving village, a mile or so due south of the remains of the ancient city of Ava. Pinya, a village south of Tada-u, is the site of an old capital of the Shan dynasty. South again of Pinya is a village called Myinzaing, another old Shan capital. A fair quantity of wheat is produced in the township, portions of which, however, are very dry and sterile. There are a few barren hills and ridges, but the country is generally level. The area cultivated in 1903-4 was 117 square miles, and the land revenue and *thathameda* amounted to Rs. 1,15,400.

Myinmu Subdivision.—Subdivision of Sagaing District, Upper Burma, containing the MYINMU, CHAUNGU, MYAUNG, and NGAZUN townships.

Myinmu Township.—Township in Sagaing District, Upper Burma, lying along the northern bank of the Irrawaddy, between 21° 49′ and 22° 10′ N. and 25° 21′ and 94° 41′ E., with an area of 286 square miles. It contains no high ground, and away from the Irrawaddy and Mu the country is very dry. The population was 39,386 in 1891, and 41,256 in 1901, distributed in 86 villages, the head-quarters being at Myinmu (population, 3,368), on the river bank close to the Sagaing-

Alon railway, 30 miles west of Sagaing town. The township contains a number of large villages, two with a population exceeding 2,000, Allagappa (3,795) and Wunbye (2,049), and six with a population of between 1,000 and 2,000. Along the Irrawaddy are several swamps which are used for irrigation, and are themselves cultivated as they dry up. The area cultivated in 1903-4 was 120 square miles, and the land revenue and *thathameda* amounted to Rs. 1,09,000.

Chaungu.—North-western township of Sagaing District, Upper Burma, lying along the eastern bank of the Chindwin, between 21° 47′ and 22° 2′ N. and 95° 9′ and 95° 26′ E., with an area of 177 square miles. The population was 30,108 in 1891, and 33,134 in 1901, distributed in 88 villages, the head-quarters being at Chaungu (population, 8,545), a collection of villages on the Sagaing-Alon railway, 52 miles west of Sagaing town. Good rice lands extend from the township head-quarters westwards to the Chindwin, on the banks of which is Amyin, a large village with a bazar; but farther inland the country is very dry. There is no rising ground. The area cultivated in 1903–4 was 96 square miles, and the land revenue and *thathameda* amounted to Rs. 1,26,400.

Myaung.—Western township of Sagaing District, Upper Burma, lying in the angle formed by the junction of the Irrawaddy and Chindwin rivers, between 21° 35′ and 21° 52′ N. and 95° 12′ and 95° 26′ E., with an area of 246 square miles. The population was 25,270 in 1891, and 31,497 in 1901, distributed in 79 villages. The head-quarters till recently were at Kyaukyit, on the Nabet stream, a waterway connecting the Irrawaddy and Chindwin, but have now been moved eastwards to Myaung (population, 1,016), on the right bank of the Irrawaddy, about 40 miles west of Sagaing town. The area cultivated in 1903–4 was 96 square miles, and the land revenue and *thathameda* amounted to Rs. 1,14,200.

Ngazun.—Township of Sagaing District, Upper Burma, lying between 21° 32′ and 21° 55′ N. and 95° 26′ and 95° 49′ E., along the south bank of the Irrawaddy, with an area of 358 square miles. The population was 44,911 in 1891, and 52,532 in 1901, distributed in 169 villages, the head-quarters being at Ngazun (population, 2,254), on the river bank about 17 miles north of Myotha, the subdivisional head-quarters. The township is rugged and barren except in the neighbourhood of the river, and the rainfall is low. The area cultivated in 1903–4 was 164 square miles, and the land revenue and *thathameda* amounted to Rs. 1,30,700.

Ava (Burmese, *Inwa*).—The old capital of Burma, in the Tada-u township of Sagaing District, Upper Burma, situated in 21° 51′ N. and 96° E. The remains of the old city lie at the junction of the Myitnge (Doktawaddy) with the Irrawaddy, the city having been built on a triangular island artificially formed by a channel called the Myittha *chaung*, which was dug from the Myitnge to the Irrawaddy. The few houses left are now scattered about in more than two dozen hamlets, inhabited by colonies of lacquerers, weavers, and other artisans, some without, some within, the old walls. The city stood at the north-east corner of the island. The outer wall is surrounded by a moat, open towards the Myitnge on the east but closed on the north towards the Irrawaddy. The inner or palace wall has a second similar moat round it. Of the old palace nothing is left but one shaky brick tower, very much out of the perpendicular, and not likely long to remain standing. The walls, both outer and inner, are still very solid and substantial, and give some idea of the aspect that Ava in its palmy days must have presented; but they have now been nearly swamped by a sea of undergrowth. The area between the inner and outer wall is filled with stretches of cultivated land, scattered hamlets, *kyaungs*, and enormous jungle-clad masses of bricks that were once pagodas. Much of this area and all the space within the inner walls are extremely picturesque. The numberless fine old tamarind-trees of huge size, the level green swards, the profuse vegetation, half hiding the thatched hamlets, the massive old walls and ruined shrines, the cleared vistas, make up a scene which suggests a park rather than the site of an old capital. The view across the river to Sagaing, up stream to Mandalay, and eastwards over the Amarapura plains to the Shan Hills is unequalled on the Irrawaddy.

The principal pagodas are the Lawkamanaung, the Yatanamanaung, the Zinamanaung, the Tuthamanaung, and the Ngamanaung, built by king Sanemintayāgyi in the year 306 B.E. (A.D. 944), and the Shwezigon, built by king Mingyizwa Sawke in the year 529 B.E. (1167).

Founded by king Thadominpayā in the middle of the fourteenth century, after the final collapse of the Pagan dynasty, Ava was for many years the capital of one of the kingdoms that struggled during the middle ages for the mastery in Burma. During the fourteenth and fifteenth centuries the king of Ava was constantly either invading the territory of the Talaings or resisting Peguan attacks on his own kingdom; and more than once during that period Ava saw Shan kings

reigning within her gates, and Chinese armies encamped before her walls. In the sixteenth century the Toungoo dynasty rose to power, and in 1554 Bayin Naung, king of Toungoo, laid siege to and took the Burmese capital. The fortunes of the town were at a low ebb during the last half of the sixteenth and the early years of the seventeenth century, but in 1636 it became the capital of an empire which then included Pegu and the greater part of what is now Burma. The Peguans, however, revolted about the middle of the eighteenth century and shook off the Burmese yoke, and in 1752 Ava was captured by a Talaing army and burnt to the ground. It was not long before Alaungpayā had turned the tables on the Talaing conquerors; but that monarch made his own capital at Shwebo, and Ava did not become the head-quarters of government again till 1766, when Sinbyushin, one of Alaungpayā's sons, rebuilt the palace and moved his court there. The town did not long remain the capital, however. A few years later Bodawpayā built a new city at Amarapura, and the court and its following migrated there in 1783. Bagyidaw, Bodawpayā's grandson, moved the seat of government back to Ava in 1822; and the town was the capital of Burma during the first Burmese War, and was the objective of the British troops in their advance up the Irrawaddy in 1826. It was Bagyidaw's successor, Tharrawaddy, who finally abandoned the city as the capital, and established himself at Amarapura, and since 1837 no Burmese monarch has resided in Ava.

Preparations were made at Ava to arrest the advance of the British up the Irrawaddy at the time of the annexation of Upper Burma in 1885; steps were taken by the Burmese to block the channel of the river opposite the town and troops were collected, but the resistance collapsed. Ava was for some time after the annexation the head-quarters of a separate District, which was, however, before long absorbed into Sagaing District.

Sagaing Town.—Head-quarters of the Division and District of the same name in Upper Burma, picturesquely situated in 21° 54′ N. and 96° E., opposite Amarapura on the right bank of the Irrawaddy, at the sweeping curve of that river, as it changes its course from south to west. The bank here is high, and the town, embowered in tamarind-trees, is unusually healthy. The civil station occupies the southern portion of the river front. The native quarters lie to the south, north, and north-west of the European quarter; and on the foreshore in the north-east corner of the town are the railway station

and the steamer *ghāt*, whence communication is established with the Amarapura side of the river by a steam ferry. North of the railway station again stretches a long range of arid hills covered with pagodas and monasteries, which follows the Irrawaddy along its western bank as far as the north-eastern angle of the District. There is a good road along the river front from the railway station to the Commissioner's residence, and most of the main roads of the town run parallel to or at right angles to it.

The population of Sagaing town was 9,934 in 1891 and 9,643 in 1901, and included in the latter year 670 Musalmāns and 218 Hindus. In addition to a fairly large Indian population, the town contains a good many Ponnas or Manipurīs, who live in a quarter of their own. It is a fairly thriving industrial centre, and is well-known for its silk-weaving.

Sagaing (or Sit-kaing, 'the branch of a *sit* tree') dates as a capital from A. D. 1315, when Athin Khaya made himself independent of the Shan kingdom of Pinya. In 1364 Athin Khaya's grandson, Thadominpayā, founded the kingdom of Ava, and Sagaing was destroyed by the Shans. It was at Sagaing that the Manipurī invasion of 1733 was checked; but the town did not again become a capital till 1760, when a city, with a circumference of 2 miles, was built by Naungdawgyi, the eldest son of Alaungpayā, only to lapse into comparative insignificance on his death. The old city lies to the north of the present town, north of the Zingyan creek and east of the Sigongyi pagoda. An attempt was made by the Burmese garrisons of Sagaing and Ava to stop the British flotilla ascending the Irrawaddy in the 1885 expedition, but the forts were inadequately defended on the land side and were soon captured.

Sagaing was constituted a municipality in 1888. The municipal income and expenditure during the ten years ending 1901 averaged Rs. 27,000. In 1903–4 the income was Rs. 35,700, including Rs. 14,700 from the bazar and Rs. 3,800 house and land tax; and the expenditure was Rs. 36,000, the chief items being conservancy (Rs. 6,600), hospital (Rs. 5,500), roads (Rs. 3,900), and lighting (Rs. 2,900). The municipality owns a large and a small bazar, and supports a hospital with 64 beds. There is an Anglo-vernacular school at Sagaing, maintained till recently by the municipality at a cost of Rs. 2,300 annually. It is now maintained by Government.

Chindwin District, Lower.—District in the Sagaing Division of Upper Burma, lying between 21° 48′ and 22° 50′ N. Boundaries.

configuration, and river and hill systems.

and 94° 16′ and 95° 39′ E., with an area of 3,480 square miles. In shape it is roughly a triangle, with its apex towards the north, and it is bounded on the north by the Upper Chindwin and Shwebo Districts; on the west by Pakokku District, from which it is separated by the Pondaung range; on the east by Shwebo District; and on the south by Pakokku and Sagaing. Its main natural feature is the CHINDWIN RIVER, which flows across the District from north-west to south-east, dividing it into two equal parts east and west, and bisecting its southern base. During the rains this river has a strong current and varies much in breadth; in places it is fully a mile across from bank to bank, while about 20 miles north of Monywa the channel is narrowed to about 60 feet by the Shwezaye defile, a serious obstacle to navigation during the highest floods. Elsewhere the stream is easily navigable throughout the year by the largest river-craft. In the west the double range of the Pondaung runs north and south. The northern half of the western boundary of the District follows the western, and the southern half the eastern ridge of the Pondaung, the border line crossing from one to the other at the watershed separating the Taungdwin stream in its narrow deserted upper valley from the sources of the Kyaw, which, flowing south, waters part of Pakokku District. Along the whole length of this western boundary the Pondaung maintains an average height of 4,000 feet. East of the Pondaung and between it and the Chindwin is the Mahudaung range, which enters the District from the Upper Chindwin, and runs generally southwards to about 15 miles from the southern boundary, its highest point being 2,305 feet above the sea. In the valley between this range and the Pondaung run, northwards the Patolon, and southwards the North Yoma stream. The former traverses a sparsely populated valley, passes into the Upper Chindwin District, and eventually joins the Chindwin river just below Mingin. The latter, flowing south, bends round the southern end of the Mahudaung range and finally unites with the Kyaukmyet, a large affluent of the Chindwin which empties itself into the main stream almost opposite Monywa. Between the Mahudaung and the Chindwin river is a small hill range, about 25 miles in length, called the Thingadon, which is separated from the Mahudaung by the waters of the Thingadon *chaung*. The triangle formed by the Mahudaung range, the Chindwin river, and the southern boundary of the District is, in its northern part, rugged and hilly, the villages being confined mostly to the banks of

the Chindwin and its small affluents. The southern portion is much flatter and more evenly populated, being broken only in the south-east by sporadic hill masses, of which the most notable are the Powundaung, the Taungkomaik, and the Letpadaung in the Salingyi township, each about 1,000 feet in height, and the Pagyidaung in the Pale township. The first named is remarkable on account of the cave temples it contains. This southern plain is watered by the Kyaukmyet *chaung* referred to above, and by the Nga Kon Yama stream, which forms the greater part of the southern boundary of the District. The country east of the Chindwin is undulating, and is bisected by the low Nwegwedaung range, which sends out small streams westwards to the Chindwin and eastwards to the Mu. This latter river bounds the District for about 20 miles near its south-eastern corner, and is navigable by country boats throughout the year. The only tributaries of the Chindwin of any considerable size on the eastern side are the Inbaung and Weka *chaungs* in the extreme north of the District, which rise in Shwebo and unite 3 miles before joining the main stream.

Geology. Little is known of the detailed geology of the District. The rocks are entirely of Tertiary age. In the extreme west Nummulitic limestone and shales are exposed. These are followed to the east by miocene clays and sandstones, and these again by the soft sandstones which cover the greater part of the District and belong to the pliocene period. An interesting feature is the occurrence of several explosion craters, rounded or oval hollows, sometimes containing lakes. They may extend, as at Leshe, to a width of over a mile, with depressions of 100 to 200 feet bordered by precipitous margins. The low ridges of fragmentary rocks, and the scattered blocks lying about the plain, are probably the result of ejection by volcanic action.

Botany. The chief plants found are the *okshit* (*Aegle Marmelos*), *thanatka* (*Murraya exotica*), *tamaka* (*Melia Azadirachta*), *tawtamaka* (*Melia birmanica*), and *tanaung* (*Acacia leucophloea*); and among the flowers may be mentioned *shwenwe-pan* (*Cassytha filiformis*) and *migyaun-gnwe-pan* (*Derris scandens*). Further details regarding the vegetation will be found under the heads of Agriculture and Forests.

Fauna. The characteristic wild animals are elephants, leopards, *thamin* (brow-antlered deer), *tsine* or *hsaing* (*Bos sondaicus*), *daye* (hog deer), and wild hog. Elephants are found in the eastern jungles, the other wild animals all over the District.

Tigers are rare. In the cold season water-fowl swarm in abundance on the sandbanks in the Chindwin and in the *jhīls* in its neighbourhood.

Climate, temperature, and rainfall.

The District is situated in the dry zone, and the heat during the months of March, April, and May is considerable; the climate during the monsoon, on the other hand, is breezy and moderate, and the winter is delightful. The maximum temperature at Monywa averages 81° in December and 97° in May, and the minimum 59° in December and 81° in May, while temperatures as low as 52° and as high as 106° have been occasionally registered. The average mean for the year is 83°. Rainfall is registered at Monywa, Pale, Budalin, and Kani. The total fall for the year 1900–1 recorded at these stations was 32, 45, 43, and 52 inches respectively. As elsewhere in the northern portion of the dry zone, the rainfall increases towards the north.

History and archaeology.

The Chindwin country was entered by British troops in 1886, and during the early part of 1887 a battalion of military police arrived in the District, and civil police were enlisted with a view to its pacification. At first, the present Upper and Lower Chindwin Districts formed a single Deputy-Commissioner's charge, with head-quarters at Alon; but in 1888 the District was split up into two, and Monywa was eventually made the head-quarters of the southern portion. In April, 1887, the rebel Hla U, who had been practically ruling the Ayadaw and Kudaw townships on the Shwebo and Sagaing borders, and committing numerous dacoities during the year, was killed by one of his own lieutenants at Wadawma. On the other side of the river trouble was greatest around Pagyi (now the Salingyi township), where three risings took place, two in 1887 and one in 1888. In the first outbreak two attacks were made on a dacoit leader Po Tok, who had killed the Kani *wun*; in the first engagement a British officer and some sepoys were wounded; in the second Po Tok was presumably killed near Kyadet, as he was never heard of again. The second disturbance was late in 1887, and was headed by a man who styled himself the Shwegyobyu prince, assisted by two dacoit leaders named Nga Saga and Nga Pyo, who afterwards gave much trouble. The rebels were attacked at Chinbyit by a British force consisting of a few mounted men with three officers, two of whom, Major Kennedy and Captain Beville, were killed. A force of 70 rifles came up later, but the three leaders managed to escape, leaving 40 dead. Several other dacoits of mark were captured in the operations

under the late General Penn Symons, and the establishment of civil police guards at Salingyi and elsewhere helped to keep the District quiet for a time. An attempted rising in 1888 was quashed by the arrest at Monywa, and the subsequent execution, of a suspect known as the Nagabo prince, who was arranging a rebellion with the Shwegyobyu prince, Nga Saga, and Nga Pyo. The three Bos, however, really did rise in the Yaw country in 1889, and the rebellion acquired serious dimensions; but the rebels were dispersed at Gangaw by a force of 200 men, the Shwegyobyu prince fled to the Chin Hills, Nga Saga was killed, and Nga Pyo slain by a fellow leader. With the suppression of this rising the peace of the District was assured.

Many celebrated pagodas are situated in the District. One of considerable note is the Alaungdaw Kathapa, built on the watershed between the Patolon and Yoma streams in the Kani township, in memory of the Buddhist monk who is said to have conducted the first Synod held after the Buddha's death. A large number of pilgrims from different parts of Burma visit it every year. Other notable shrines are the Paungwa, the Shwekuni, the Shwegu, the Sutaungbyi, the Shwemyindin, the Shwezigon, the Shinbyuyatkyi, and the Ingyindaung pagodas. Powundaung, a hill about 3 miles east of Lengauk village in the Salingyi township, is noted for its numerous cave temples carved out of sandstone rock. There are said to be 444,444 images of Buddha of different sizes in these recesses.

The population increased from 233,316 in 1891 to 276,383 in 1901. Its distribution in the latter year is shown in the following table:— The people.

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Budalin	451	...	196	55,447	123	+ 9	9,837
Monywa	487	1	297	90,164	185	+ 25	17,118
Kani	1,788	...	256	48,717	27	+ 18	8,712
Salingyi	296	...	211	50,814	172	+ 16	10,707
Pale	458	...	252	31,241	68	+ 22	5,978
District total	3,480	1	1,212	276,383	79	+ 18	52,352

The only town is MONYWA, the head-quarters of the District. The density of population is identical with the average for the whole of the dry zone of Upper Burma. Within the District

the density varies considerably from tract to tract; the Salingyi township, on the west bank of the Chindwin river in the south of the District, is one of the most thickly populated townships of Upper Burma, while in the Kani township in the north-west the inhabitants are as scattered as in some of the wildest areas of the Province. The Census of 1901 showed that the Lower Chindwin had a higher proportion of females than any other District of the Province. This large excess was probably due to a temporary exodus of males to the harvest fields of more fertile Districts. There has been very little immigration into the Lower Chindwin from the rest of Burma. Buddhists form 99 per cent. of the population, and outside Monywa hardly anything is spoken but Burmese.

Race and occupation.

The Indian residents of the District are all immigrants, mainly from the Punjab, Bengal, the United Provinces, and Madras, and include 800 Musalmāns and 900 Hindus. The great majority of the population consist of Burmans, who in 1901 numbered 274,200, or more than 99 per cent. of the total. Of indigenous non-Burmans there are none, and on the whole the Lower Chindwin may be looked upon as one of the most typically Burman Districts in the Province. The number of persons wholly dependent on agriculture in 1901 was 165,624, or about 60 per cent. of the total population.

Christian missions.

There is only one mission (a Wesleyan one), and the total number of Christians in 1901 was only 188, of whom 111 were natives.

General agricultural conditions.

The principal soils are sand, clay, and silt. Sandy earth of poor crop-bearing capacity predominates; clay is found over many of the levels, and belts of alluvial soil stretch along the banks of the larger watercourses. Throughout the District primitive agricultural methods are still followed. The land is as a rule prepared with the ordinary *tun* or harrow, while for the alluvial *kyun* or *kaing* cultivation the *te* or plough is used.

Chief agricultural statistics and principal crops.

The area cultivated in 1891 was 280 square miles, which rose to 542 square miles in 1901. The main agricultural statistics for 1903-4 are shown, in square miles, in the table on the next page.

The cultivated area is for the most part situated in the townships on the east bank of the Chindwin, and in the Salingyi township adjoining the western bank of that stream. Of the total cultivated area, rice occupied 99 square miles in 1903-4. Nearly half the entire rice crop, and almost the whole of the hot-season rice (12 square miles), is grown in the Salingyi township, where facilities for irrigation are greater than else-

where. The chief crop is, however, not rice but *jowār*, which covered 281 square miles; and even the area under sesamum (125 square miles) was larger in 1903-4 than that devoted to rice. Gram is grown on 7,800 acres, mostly in the Monywa township, and beans and the like on 34,200 acres. A considerable area (12,400 acres) is under cotton, which does well in the *ya* or upland of the Monywa, Budalin, and Salingyi townships. Tobacco is cultivated mainly in Pale and Monywa, covering an area of 1,400 acres. The garden-cultivation is exceptionally small (only 1,900 acres), and consists mainly of plantain groves. The average area of a holding is 4 acres.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Budalin	451	182	...	
Monywa	487	191	...	
Kani	1,788	32	1.25	2,072
Salingyi	296	147	2.63	
Pale	458	55	0.64	
Total	3,480	607	4.52	2,072

Improvements in agricultural practice. No advances under the Land Improvement Loans Act have been made, but loans under the Agriculturists' Loans Act are granted every year, according to the requirements of the season, and are freely sought after. In 1903-4 a sum of Rs. 21,700 was so advanced to cultivators. Very little has been done in the way of introducing new staples.

Cattle, &c. Cows, sheep, goats, and ponies are bred all over the Lower Chindwin, not, however, as a rule, for gain, but to meet local requirements. No special grazing-grounds are allotted. The cattle are allowed to rove at will through the jungles, where pasturage is sufficient during the greater part of the year; but difficulties in regard to fodder spring up in the dry season, when the cultivators are obliged to fall back on the *pyaung* (*jowār*) stalk kept in reserve for their live-stock. In seasons of prolonged drought cattle suffer a great deal from want of water.

Irrigation. There are no major or minor Government irrigation works of any kind, but a small area is watered from tanks and canals dug by private individuals in the Yinmabin subdivision. The area thus supplied in 1903-4 was 3,000 acres. No important fisheries exist, but fishing is carried on in the bed of the Chindwin and in the *jhīls* adjoining its banks The fishery revenue in 1903-4 amounted to Rs. 8,100.

Forests. The limits of the District are conterminous with those of the

Lower Chindwin Forest division. Most of the forests lie in the hills to the west, and may be roughly divided into the following classes: teak-bearing forests, *indaing* forests with teak, *indaing* forests with no teak, forests with pines. In the first class *pyingado* (*Xylia dolabriformis*) is the commonest tree. In the second, *padauk* is also plentiful, intermixed largely with jungle woods of every variety. In the third, *in* (*Dipterocarpus tuberculatus*), *thitya* (*Shorea obtusa*), and *ingyin* (*Pentacme siamensis*) predominate, while *dahat* (*Tectona Hamiltoniana*) is also found. The fourth class consists of isolated patches of pines occurring in places along the summit of the Pondaung. No special plantations of trees of economic value have been formed. Among minor products, cutch, bamboos, and canes yield the largest revenue; but small sums are also realized on *indwe*, *pwenyet*, and *shaw* (*Sterculia sp.*) fibre. In 1903 the District contained 647 square miles of 'reserved' forests, the most important being the three Patolon Reserves (318 square miles), situated in the basin of the Patolon *chaung* in the north of the District. The gross forest revenue in 1903-4 was Rs. 40,600.

Minerals.

Sulphate of copper has been found in the Letpadaung hills in the Salingyi township, and a licence to prospect for it has been granted recently. Gold occurs at Chinbyit in the Pale township; garnets and tourmaline exist near Salingyi, and petroleum in Kine, in the Pale township, and at the foot of the Mahudaung range in the Kani township. Besides these minerals, clay, laterite, and gravel are found all over the District, and limestone in small quantities in the hills. In 1900 prospecting licences for petroleum were granted to several individuals, two of whom started boring for oil, but met with no success and abandoned their enterprise. There have been numerous applications of late for prospecting licences for earth-oil in Kani, but most of them have not been favourably entertained. The Burma Oil Company has, however, obtained a licence to prospect over an area of 20 square miles in that township, and has already started operations. Salt is manufactured in Salingyi by boiling the water from brine-wells.

Arts and manufactures.

A little wood-carving is done at Alon, and there are potteries at Ayadaw and Yedwet near the Shwebo border, where pots for drinking and cooking purposes are manufactured. Brass gongs, spoons, cups, &c., are turned out at Indaing. The Lower Chindwin gongs have achieved considerable local notoriety, and, a few years ago, the annual value of the trade in these articles was estimated at about Rs. 23,000. Burmese saddles

and bridles are manufactured at Kyehmon and Monywe, near the Sagaing border; *das* are forged at Baunggya on the Mu; silk-weaving is carried on at Kothan, though on a small scale; and slippers are made at Kanbya. A great deal of lacquer-ware in the form of trays, bowls, and other utensils is produced at Kyaukka in the Monywa and Maungdaung in the Budalin township. The Kyaukka lacquer-ware finds a ready market in Lower Burma. Mats and *pas* (baskets with covers) are woven in the Yinmabin subdivision. With the exception of the gongs and the lacquer-ware, the articles named are produced mostly for local use. A saw-mill was started about half a mile from Monywa town on the left bank of the Chindwin in 1900, but has not proved a financial success and is not worked regularly. A rice-mill, which was opened in 1901, has similarly failed to attract local custom.

Commerce and trade. The Lower Chindwin is an almost wholly agricultural District, and its chief exports are pulse, jaggery (unrefined sugar), and *jowār*, of which the first two are sent in large quantities to Lower Burma. Besides these agricultural commodities cutch is exported, as well as brass and lacquer-work. The principal imports are *ngapi*, salt, salted fish, and goods of foreign manufacture. Paddy comes in from the Upper Chindwin and Shwebo Districts, and rice from Lower Burma. The exports and imports are for the most part conveyed by means of country boats and the Irrawaddy Flotilla Company's steamers, and by rail, the only important exception being the paddy from Upper Chindwin, which comes on rafts down the Chindwin to Monywa, where it is distributed to the villages inland. Paddy from Shwebo District is brought in by the cart-road connecting Ye-u with Monywa. Most of the *ngapi* and salted fish comes from the delta Districts of Lower Burma in country boats, while salt is imported from Rangoon by both rail and steamer. The main trading centres are Monywa, and Saton, Kyaukmyet, and Ywashe in the Yinmabin subdivision on the western bank of the Chindwin. Most of the people engaged in trade are Burmans and Chinamen. Natives of India do business on a small scale at many of the bazar towns and villages.

Means of communication. The Sagaing-Alon railway runs along the western border of the Monywa township, with its terminus at Alon, 7 miles north of Monywa, and has four stations in the District. Eight roads, with a total length of 146 miles, are kept up by the Public Works department: namely, Monywa towards Ye-u, in Shwebo District, 32 miles; Monywa towards Myinmu, in Sagaing District, 11 miles; Monywa to Magyizauk, 36 miles (26 un-

metalled); Saton to Kyadet, 17 miles; Tandaw, opposite Monywa, to Yinmabin, 15 miles; and three shorter roads. The District fund maintains about 350 miles of unmetalled tracks connecting the towns and more important villages.

Weekly services of Government and Irrawaddy Flotilla Company's steamers on the Chindwin touch at Saton, Monywa, Alon, and Kani. Communications are further maintained by eleven ferries on the Chindwin river and three on the Mu.

Famine. The rainfall is fickle and untrustworthy, and few years pass without some slight threatenings of local drought. Towards the end of 1891 failure of rain brought about a serious scarcity of food-grains in the then existing Monywa, Ayadaw, and Kudaw townships, as well as in a portion of the Kani township; and it was found necessary to open famine relief works, which involved an expenditure of about Rs. 90,000. The distress was in places severe, extending over an area of 75 square miles, and affecting a population of 30,000, while relief operations lasted for 45 weeks. The highest daily attendance on the works was 4,332 persons, and the total number of units relieved from the beginning to the end of the period of scarcity was 362,866. The failure of crops is said to have driven between 2,000 and 3,000 families out of the District. The efforts of the local officials were, however, so successful that, judging from the census returns, the District had recovered from its effects by 1901. There has been no serious harvest failure since 1891.

District subdivisions and staff. The District is divided for administrative purposes into two subdivisions: Monywa, to the east of the Chindwin, comprising the Budalin and Monywa townships; and Yinmabin, for the most part to the west of the river, comprising the Kani, Salingyi, and Pale townships. These are in charge of the usual executive officers, under whom are 804 village headmen, 511 of whom receive no commission on their revenue collections. Kani was, under Burmese rule, the head-quarters of a *wun*, and the present township officer still retains the courtesy title of *wun* of Kani. The District, with the Chin Hills and the Upper Chindwin District, forms the Chindwin Public Works division, with head-quarters at Monywa.

Civil justice and crime. The subdivisional and township officers are civil judges in their respective charges, the Monywa township officer being assisted in his civil work by the treasury officer, who is also head-quarters magistrate. The people resort readily to the civil courts, and as the area of private land is comparatively

extensive, the number of suits for the possession of property is large. The criminal courts are presided over by the executive officers, and crime is of the usual type.

Revenue administration.

As in other parts of Upper Burma, the main source of revenue under native rule was *thathameda*, levied at the rate of Rs. 10 a household. It was assessed by specially selected village elders (*thamadis*), and shortly before annexation brought in about 2⅓ lakhs annually. The land revenue proper was then insignificant in amount. It was derived only from state lands, and represented a fraction of the produce valued at current market rates. The other sources of revenue, such as customs, brokerage, and the like, were mostly given up on annexation, excise being levied in their place. On the introduction of British rule the land revenue proper and *thathameda* were collected as before, the former being levied at the rate of one-third of the annual produce of certain lands belonging to royal servants and their descendants and a few others. The direct assessment of land revenue was introduced in 1902-3. A summary settlement was made, and acreage rates were sanctioned in the Monywa and Budalin townships, with the result that the land revenue, which in 1900-1 had been only Rs. 8,200, rose in 1903-4 to more than a lakh and a half, this increase being counterbalanced, however, by a corresponding reduction in the *thathameda*, which fell from 5·7 lakhs to 4·6 lakhs. The whole of the Salingyi township and parts of the Pale and Kani townships were placed under supplementary survey in 1904, and acreage rates have now been sanctioned. According to the present settlement, the rates on non-state land vary from Rs. 1-4 to Rs. 1-8 on rice lands, from 6 to 8 annas on *ya* or upland crops, and from 12 annas to Rs. 3-4 on *kaing* or alluvial crops. On state land the range is from 6 annas on *ya* land to Rs. 4-8 on *kaing* cultivation. The greater part of the District falls under the category of *kaing* or *ya*. Regular settlement operations are now in progress.

The following table shows the growth of the revenue since 1890-1, in thousands of rupees :—

	1890-1.	1900-1.	1903-4.
Land revenue . .	5	8	1,59
Total revenue . .	...	6,46	6,70

Thathameda is still the main source of revenue.

Local and municipal

The income of the District fund for the provision of roads, *dāk*-bungalows, &c., amounted in 1903-4 to Rs. 13,300, the

govern-ment. main item of expenditure being Rs. 10,300 on public works. The District and the MONYWA municipal fund are the only two Local funds.

Police and jails. Under the District Superintendent of police are two subdivisional police officers, stationed at Monywa and Yinmabin. The strength of the civil police force is 2 inspectors (in charge of the subdivisions), 9 head constables, 30 sergeants, and 326 constables. There are 9 police stations and 12 outposts. Monywa is the head-quarters of the Chindwin military police battalion, 1,130 strong. Of these, 585 are stationed at Monywa and 30 at Yinmabin; the rest are distributed in the Upper Chindwin District. The commandant and two assistant commandants are at the battalion head-quarters, and a third assistant commandant at Kindat. The District jail at Monywa has accommodation for 118 persons. Wheat is ground by its inmates for the military police, and a little carpentry is done for Government departments and for sale to the public. The produce of the jail garden is used for the prisoners' food; what is not required for this purpose is sold.

Education. The proportion of literate persons in 1901 was 41 per cent. in the case of males, and 2 per cent. in that of females, or 19 per cent. for both sexes together. In view of the fact that the District contains no backward hill tribes and comparatively few natives of India, the figure is somewhat low for Burma. The attitude of the local ecclesiastics towards education may have something to do with this. There are indications that the *pongyis* view the Government methods of teaching with special disfavour, and that the local educational staff have had more than ordinary difficulty in combating this feeling. It appears further that the people, who are largely agriculturists, evince no desire to have their children educated to a high standard, though they are willing enough to send their sons to the Government survey school. There is only one Anglo-vernacular aided school, the English Wesleyan Mission School. The number of aided vernacular schools in 1903–4 was 139. The District contains 3 secondary, 137 primary, and 769 elementary (private) schools. The number of pupils was 5,162 in 1890–1, 8,344 in 1900–1, and 9,961 (including 763 girls) in 1903–4. The expenditure on education in the last year was Rs. 8,900, towards which Provincial funds contributed Rs. 7,100, and fees Rs. 1,800.

Hospitals and dispensaries. In addition to a military police hospital with 40 beds, there is a civil hospital at Monywa with 32 beds. In 1903 the number of cases treated was 9,406, including 435 in-patients,

and 151 operations were performed. The income of the civil hospital was Rs. 5,400, made up of Rs. 2,500 from Provincial funds, Rs. 2,400 from municipal funds, and Rs. 500 from subscriptions. A small dispensary has recently been opened at Yinmabin.

Vaccination is compulsory within the limits of the Monywa municipality. In 1903-4 the number of persons successfully vaccinated was 9,387, representing 34 per 1,000 of the population. Vaccination.

Monywa Subdivision.—Subdivision of the Lower Chindwin District, Upper Burma, lying east of the Chindwin river. It comprises the BUDALIN and MONYWA townships.

Budalin.—North-eastern township of the Lower Chindwin District, Upper Burma, lying on the east of the Chindwin river, between 22° 14′ and 22° 37′ N. and 94° 56′ and 95° 35′ E., with an area of 451 square miles. The population was 50,847 in 1891, and 55,447 in 1901, distributed in 196 villages. Budalin (population, 2,577), an inland village, 20 miles due north of Monywa, is the head-quarters. The township lies on an elevated plain, and is not well watered; but rice, *jowār*, sesamum, and peas are grown. The area cultivated in 1903-4 was 182 square miles, and the land revenue and *thathameda* amounted to Rs. 1,20,800.

Monywa Township.—South-eastern township of the Lower Chindwin District, Upper Burma, lying between 21° 55′ and 22° 21′ N. and 95° 3′ and 95° 39′ E., from the Mu river in the east to the Chindwin river in the west, with an area of 487 square miles. The population was 71,971 in 1891, and 90,164 in 1901, distributed in 297 villages, and one town, MONYWA (population, 7,869), the head-quarters of the District. The township head-quarters are at Alon (population, 3,624), the terminus of the Sagaing-Alon branch railway, on the Chindwin, about 7 miles above Monywa. Trade has greatly increased since the annexation, and communications have been largely improved. The township, which is on the whole level and dry, contained 191 square miles under cultivation in 1903-4, and the land revenue and *thathameda* amounted to Rs. 1,89,500.

Yinmabin.—Subdivision of the Lower Chindwin District, Upper Burma, lying for the most part west of the Chindwin river. It comprises the KANI, SALINGYI, and PALE townships. The head-quarters are at Yinmabin (population, 643), in the Salingyi township, about 16 miles west of Monywa on the opposite bank of the Chindwin.

Kani.—Northernmost township of the Lower Chindwin District, Upper Burma, lying on both sides of the Chindwin river, between 22° 2′ and 22° 50′ N. and 94° 16′ and 95° 5′ E., with an area of 1,788 square miles. The population was 41,232 in 1891, and 48,717 in 1901, distributed in 256 villages, Kani (population, 1,097), about 40 miles above Monywa, on the right bank of the Chindwin, being the head-quarters. A large portion of the township consists of 'reserved' forests, and the whole is hilly and well watered. Cultivation is confined to the narrow valleys in that portion lying west of the Chindwin, and to the flatter part east of the river. The area cultivated in 1903–4 was 32 square miles, and the land revenue and *thathameda* amounted to Rs. 1,11,000.

Salingyi.—Township of the Lower Chindwin District, Upper Burma, lying between 21° 49′ and 22° 8′ N. and 94° 47′ and 95° 10′ E., along the western bank of the Chindwin, with an area of 296 square miles. The population was 43,658 in 1891, and 50,814 in 1901, distributed in 211 villages, Salingyi (population, 1,503), a village south of Monywa and a few miles to the west of the Chindwin, being the head-quarters. The township is flat, except in the north-east, and is well watered and thickly populated. The soil is for the most part black cotton soil, which produces rice, *jowār*, sesamum, peas, gram, and cotton. The area cultivated in 1903–4 was 147 square miles, and the land revenue and *thathameda* amounted to Rs. 1,19,900.

Pale.—South-western township of the Lower Chindwin District, Upper Burma, lying between 21° 48′ and 22° 10′ N. and 94° 25′ and 94° 55′ E., with an area of 458 square miles. The population was 25,608 in 1891, and 31,241 in 1901, distributed in 252 villages. The head-quarters are at Pale (population, 1,113), close to the eastern border. The country is level in the east, becoming hilly as the Pondaung range is approached, and is well watered. The area cultivated in 1903–4 was 55 square miles, and the land revenue and *thathameda* amounted to Rs. 76,300.

Monywa Town.—Head-quarters of the Lower Chindwin District, Upper Burma, situated in 22° 6′ N. and 95° 8′ E., on the left or eastern bank of the Chindwin river, about 50 miles north of its junction with the Irrawaddy, and 65 miles west of Sagaing, with which it is connected by a branch railway. The town, which is low-lying and fairly well shaded by tamarind-trees, is protected from the annual rise of the river by an embankment along the water's edge. It contains the usual

head-quarters buildings, courthouse, and jail, all of which are situated at its northern end, as well as large barracks and a hospital for the Chindwin military police battalion. The railway station is at some little distance from the river, to the east of the civil station. The club and a good many of the houses of the European residents are close to the river bank. The town is said to derive its name (which being interpreted is 'cake village') from a baker maiden whom a king of ancient days found selling cakes, and took to himself as queen. It was of little importance at the time of annexation, the head-quarters of the *wun* being at Alon, about 7 miles farther up the river; but it has since then grown in importance and prosperity, and the last Census showed that the population had increased from 6,316 in 1891 to 7,869 in 1901, the latter total including over 1,000 natives of India. It is a fairly thriving trade centre, and one of the chief ports of call for river steamers on the Chindwin. Monywa was constituted a municipality in 1888. The municipal revenue and expenditure during the ten years ending 1901 averaged about Rs. 17,000. In 1903-4 the receipts were Rs. 26,800, including Rs. 11,800 from bazars and slaughter-houses. The expenditure was Rs. 27,000, including Rs. 6,700 spent on conservancy, Rs. 3,300 on the hospital, and Rs. 4,400 on roads. The town is well laid out and intersected by good thoroughfares. A civil hospital has accommodation for 32 in-patients. There is no municipal school, but the Wesleyan Mission school supplies most of the higher educational needs of the town.

Chindwin District, Upper.—District in the Sagaing Division of Upper Burma, taking its name from the Chindwin river, which flows through it from north to south. Geographically, the District contains two Shan States administered by their Sawbwas, ZINGKALING HKAMTI and HSAWNGHSUP, over which the Deputy-Commissioner exercises a certain amount of control. It lies between 22° 36′ and 26° 22′ N. and 93° 58′ and 96° 20′ E., with an area of 18,590 square miles, being the largest District in Burma. It is bounded on the north by the Taro and Hukawng valleys, which encircle the head-waters of the Chindwin; on the south by the Pakokku and Lower Chindwin Districts; on the east by Myitkyinā, Kathā, and Shwebo; and on the west by Assam, Manipur, and the Chin Hills. In shape it is an irregular parallelogram, roughly 250 miles long and 50 broad. Its mountain ranges are grouped into two main systems, west and east of the Chindwin river. In the extreme north-west of the District, on the

Boundaries, configuration, and hill and river systems.

borders of the Zingkaling Hkamti State, are the outlying mountains of the great pile of upland which separates Burma from Assam. In this group is the highest peak in Burma, Sarameti or Nwemauktaung (12,557 feet), often capped with snow. From the main mass branches a series of more or less parallel ridges about 2,000 to 3,000 feet in height, which run in a southerly direction right down into Pakokku District. In the north these ranges are generally known collectively as the Yoma, farther south they are called the Pondaung. For a considerable distance within the District they are skirted on their eastern flank by the Chindwin river, which they separate from the Kale and Kabaw valleys. The latter, sloping gently away from each other north and south, form one long, very fertile depression, 150 miles in length and about 8 miles in breadth, locked between the Yoma and the loftier ranges of Manipur and the Chin Hills. The hill system west of the Irrawaddy starts in the extreme north of Burma from the highlands separating the basins of the Irrawaddy and the Chindwin, and runs in a south-south-west direction, dividing the Upper Chindwin from Kathā and Shwebo Districts. It consists of a range of abrupt hills, averaging about 1,000 feet in height, but rising to over 5,000 feet in the north of the District in an eminence known as the Taungthonlon, or 'three mountains.' Its spurs extend towards the Chindwin over the wide intervening valley, cutting it up into well-watered tracts, which give the District, and especially the southern portion, its richness in hill and river scenery. The CHINDWIN RIVER runs southwards throughout the length of the District, entering it at the *kyaukse* ('stone weir'), a barrier of rocks in the extreme north that prevents access by boat to the Hukawng valley. During its course through the District it is joined by several streams, of which the most important are the Yu and the Myittha on the west and the Uyu on the east. The Yu river, which is composed of several affluents rising in the Manipur plateau, and draining the Hsawnghsup State, flows in a southerly direction till it reaches 24° N., when it suddenly bends eastwards and pierces the Yoma, to join the Chindwin 25 miles above Kindat. South of the Yu is the Myittha river, which, running in a northerly direction from Pakokku District, turns abruptly east at Kalemyo, and empties itself into the Chindwin at Kalewa. The Uyu river rises in Myitkyinā District, flows past the jade-mines, enters the Upper Chindwin District at its extreme north-east corner, and winds through a sparsely populated valley to meet the Chindwin at Homalin. The vast tract in

the angle formed by the Uyu and the Chindwin is for the most part a desolate waste of hills. Near Mingin in the extreme south of the District the Chindwin is joined by the Patolon, which flows northwards from the Lower Chindwin District.

All the rocks which occur belong to the Tertiary system, but little is known regarding the details of the geology of the District. Nummulitic (eocene) limestones and shales occur west of the river, followed to the east by shales and sandstones of miocene age. East of the river the ground is occupied by Upper Tertiary (pliocene) sandstones. There is a coal-bearing area in the west. The recent sandstone is of brown or yellow tint, and gives way easily to the combined action of rain and air. The older is of a bluish-grey colour, finely grained, and of a hardness which would render it an exceedingly good material for building purposes. Conglomerate occurs in the country between the Myittha and Yu rivers, and probably elsewhere. It consists chiefly of rolled pebbles of white quartzite, among which are mixed in smaller quantities blood-red jasper and black hornstone. It does not disintegrate so readily as the sandstone, and forms a kind of embankment or escarpment along the western side of the Kale range. Clay and shales occur in the coal-bearing area. The coal is found in beds of half an inch to 12 feet in thickness. The greater number of seams occur in the valley of the Mawku stream, in which Dr. Noetling estimates that there are not less than 40 seams with a total thickness of 80 feet. Geology.

The District is richly forested and timber abounds in infinite variety. The most characteristic trees are the *in* (*Dipterocarpus tuberculatus*), the teak, the *ingyin* (*Pentacme siamensis*), and the stately *kanyin* (*Dipterocarpus alatus*). Bamboos of every kind abound, the graceful *tinwa* (*Cephalostachyum pergracile*) being perhaps the most characteristic species; and orchids, ferns, wild roses, and other wild flowers are found everywhere. Botany.

The elephant, rhinoceros, tiger, leopard, bison, *tsine* or *hsaing* (*Bos sondaicus*), bear, and *sāmbar* are all to be met with, but comparatively little is really known of the vast areas of jungle that the District contains. The result of the operations of the Khedda department in the adjoining District of Kathā appears to indicate that the number of elephants in the Upper Chindwin is very considerable. A handsome variety of the tiger-cat is occasionally met with. Peafowl abound throughout the District, being specially plentiful in the lower reaches of the Uyu, and both the peacock pheasant and the silver pheasant are found in the north. Fauna.

Climate, temperature, and rainfall.

As might be expected in a region lying between four degrees of latitude, there is a noticeable difference of temperature between the north and the south of the District; but observations have hitherto been made only at Kindat, where the thermometer averages 70° to 95° in the hot season and 55° to 80° in the cold. The highest records have been 108° in May, 1897, 106° in May, 1898, and 107° in May, 1899, while in the extreme north the minimum, even in the plains, is not far off freezing-point in the winter. The portions of the District bordering on the Chindwin are fairly healthy, but the inland parts, and in particular the Kale, Kabaw, and Uyu valleys, are abnormally malarious and pestilential.

The rainfall varies from an average of 50 inches at Mingin, bordering on the dry zone, to 92 inches at Homalin in the north and at Tamu among the hills on the western border. As a rule the supply is plentiful and timely, but in 1891-2 the rainfall all over the District was neither, and at Mingin prices rose to more than double the ordinary rate; 1896-7 was another bad year of scanty rainfall; the Chindwin also failed to rise, and inundated crops perished accordingly. There was, however, no famine. Floods are rare; but in October, 1901, the Yu river rose to an unprecedented height in the Kabaw valley, and destroyed five villages, happily without loss of life. In 1905 there was an exceptional rise in the Chindwin.

History.

Under Burmese rule the Upper Chindwin was administered by a *wun*, known as the Khampat *wun*, who had his headquarters at Kindat, then a military post, and exercised very extensive powers. On the outbreak of war in 1885, three English assistants of the Bombay Burma Trading Corporation were murdered on the launch *Chindwin* near Mingin, and shortly after this the Political Agent of Manipur marched to Kindat through the Kabaw valley and rescued two other agents of the company. In 1886 the Deputy-Commissioner steamed up the river, meeting with some slight resistance at Balet and Masein, and received the submission of the Hsawnghsup Sawbwa. A few posts were established on the river, but nothing was done on this occasion to occupy the interior except in the Kabaw valley, where Tamu continued to be held by British troops from Manipur. At first it was intended to hand over the Kabaw valley to Manipur, but the people objected so strongly to the proposed measure that the project was abandoned. Except in the Kabaw valley itself, which was finally pacified in 1887, no organized resistance was shown to British administration in the Upper Chindwin Dis-

trict, and dacoits as a rule gave less trouble here than elsewhere. In 1886, however, Mr. Gleeson, Assistant Commissioner, was treacherously murdered at Mingin; and in 1888 Nga Saga, a follower of the Shwegyobyu pretender, headed an outbreak in the Mingin subdivision, which was speedily quelled. In the latter year the Upper and Lower Chindwin, which had been a single District administered from Alon, were divided into two Districts, with head-quarters at Kindat and Monywa respectively. For a long time after annexation the neighbourhood of the Kale valley was much disturbed. At the time of the occupation of Upper Burma, the Sawbwa of the Shan State of Kale was at war with his nephew Pa Gyi; and the Siyin, Sokte, and Kanhow Chins took advantage of this strife of the kinsmen to raid the Kale and Kabaw valleys, destroying many villages and killing or carrying off their inhabitants. Pa Gyi was appointed Sawbwa, but it was not long before he started intriguing with the Shwegyobyu pretender, who had taken refuge with the Tashon Chins. The Siyins and Kanhows were severely punished in the first Chin expedition in 1888–9, but did not cease their raids on the Kabaw valley. (For further action taken against the Chins see CHIN HILLS.) In the Wuntho rebellion of 1890–1, the rebel Nga Le marched down from the Taungthonlon hill to Homalin, where he burnt the courthouse, and called on his relation, the Hsawnghsup Sawbwa, to assist him. The Sawbwa, however, remained actively loyal, and ranged his troops on the opposite bank at Kettha, and Nga Le was shortly afterwards hunted out of the District. Pa Gyi was deported in 1891 for complicity in this rebellion and for his intrigues with the Shwegyobyu, and the Kale State from that time forward became part of the District. In the meantime British influence was being extended in the north of the District; a military police post was set up at Tamanthi, 50 miles above Homalin on the Chindwin, in consequence of raids by Chins in the neighbourhood; and punitive expeditions were dispatched in 1892 and 1894 against various Chin tribes inhabiting the hills on the Assam border to the west of the Homalin township. In 1896 boundary pillars were set up dividing off the unadministered Chin tract in the north-west of the District; and since then no raids have been committed, though the Kaswa Chins of Piya in the north have been blockaded since 1901 for cattle-lifting on the Chindwin.

The people.

The population, excluding the *quasi*-independent Shan States of Hsawnghsup and Zingkaling Hkamti, was 111,533 in 1891 and 145,032 in 1901. Including these two States it

was 154,551 in 1901. Its distribution in the latter year is shown in the following table :—

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Kindat	1,715	1	117	13,946	8	+ 20	4,510
Tamu	960	...	48	5,264	5	+ 19	1,533
Masein	1,334	...	156	14,365	11	+ 14	4,392
Kalewa	184	...	36	3,535	19	+ 5	4,728
Kale	816	...	94	10,691	13		
Mingin	1,311	...	141	19,941	15	− 5	6,271
Kyabin	800	...	90	9,954	12	+ 36	3,091
Paungbyin	2,719	...	268	26,409	10	+ 38	7,428
Homalin	2,524	...	166	17,624	7	+ 60*	3,594
Maingkaing	4,665	...	248	23,303	5	+111*	4,390
Total British territory	17,028	1	1,364	145,032	9	+ 30	39,937
Hsawnghsup State	579	...	84	7,471	13	...	1,986
Zingkaling Hkamti State	983	...	24	2,048	2	...	468
District total	18,590†	1	1,472	154,551	8	...	42,391

* The population of the Homalin and Maingkaing townships was only estimated in 1891.

† Area figures revised since the Census of 1901.

The only town, KINDAT, is really nothing more than a large village containing 2,417 inhabitants. The whole of the District is sparsely populated, the density decreasing towards the north. The apparently rapid increase of population since 1891 is due to a certain extent to non-enumeration in that year of the wilder tracts, and to the generally disturbed state of the country on the Kathā borders that had been brought about by the Wuntho rebellion. There are nearly 2,000 Animists, and about the same number of Hindus and Musalmāns, but most of the population are Buddhists. Two-thirds of the people talk Burmese, and the majority of the remainder are Shan speakers.

Race and occupation.

Rather more than half the total population is Burman. The Mingin subdivision in the extreme south is almost exclusively, and the Kindat and Kale subdivisions very largely, Burmese. Shans come next to the Burmans in point of numbers, with a total of 67,100. They inhabit the two Shan States and the

Homalin subdivision in the extreme north. There were 1,600 Chins in 1901; they are found in the neighbourhood of the Kabaw and Kale valleys and in the west of the Homalin township. A few Kachin villages lie east of the Chindwin in the semi-independent State of Hkamti, but they do not acknowledge the suzerainty of the Sawbwa, who was advised not to attempt to enumerate them in 1901. Their total was estimated at 188. Elsewhere in the District nearly 200 Kachins were found, so that the aggregate of Kachins may be taken at a little under 400. The Indian immigrants numbered 2,300 at the last Census, comprising 1,100 Hindus and 800 Musalmāns, a good many of whom were military policemen. Most of the rest are confined to Kindat, Kalewa, and Kalemyo. The population directly dependent on agriculture in 1901 was 104,195, or 67 per cent. of the total. Of this number 12,149 were supported by *taungya* (shifting) cultivation.

Christian missions. There are no missionary agencies at work and the number of the Christians (234) is small. Altogether, 200 are natives of India.

General agricultural conditions. Apart from a few large villages where Indian traders congregate, the District is agricultural throughout. The population is poor; in some parts cultivators have to pay high rents to landlords, and in others, though the out-turn is good, they are unable to bring their crops to market owing to the lack of communications. A large export trade in paddy is carried on with Monywa, Pakokku, and Myingyan, but the profits go into the hands of middlemen. The condition of the cultivators of state land is distinctly better than that of cultivators of private land, for the latter are usually sub-tenants, pay a heavy rent, and are indebted to their landlords. In some parts, however, state land has got into the possession of non-agricultural landlords, who take as heavy a rent from their tenants as the owners of private lands. The soil in the valleys, to which regular cultivation is confined, is of alluvial formation, and is often irrigated by perennial springs. The upper layers on the slopes of the hills, where the cultivation of hill-clearings (*taungyas*) is carried on, consist mainly of decayed vegetable matter. Towards the south and over most of the country east of the Chindwin, the hills are barren and unsuited to *taungya* cultivation. The standard crop is wet-season rice, but *mayin* is also common. Wet-season rice is sown in July and August, transplanted in August and September, and reaped in January. In the Mingin subdivision, where the rainfall is more precarious than elsewhere, all these operations are carried on one or two months in

advance of the rest of the District. Dry-season rice is sown in December or January, transplanted in February into depressions from which the water is retreating, and reaped in May. Buffaloes alone are used for working the land, and the harrow takes the place of the plough everywhere. For *taungya* cultivation a piece of forest land on the slope or hollow of a hill is chosen; all the undergrowth is burnt and the ground harrowed; the trees are then girdled, and their branches lopped off and piled in heaps. In May they are burnt and the ashes distributed over the fields, and the seeds sown broadcast when the first rains commence. The crop is reaped in October. After three years the soil is exhausted and the cultivator moves on to a fresh clearing.

Chief agricultural statistics and principal crops.

The following table shows the main agricultural statistics for 1903-4, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Kindat	1,715	21	31	8,230
Tamu	960	16		
Masein	1,334	26		
Kalewa	184	11		
Kale	816	34		
Mingin	1,311	37		
Kyabin	800	18		
Paungbyin	2,719	40		
Homalin	2,524	32		
Maingkaing	4,665	29		
Total	17,028	264	31	8,230

Rice is the principal crop in both the hills and the valleys. In 1903-4 it occupied 251 square miles, of which 24 were *mayin*. Peas, beans, tobacco, sesamum, and cotton are cultivated for home consumption, but occupy quite an inconsiderable area. Tea is grown in four or five villages on the Chindwin north of Homalin, over an area which in 1903-4 amounted to nearly 1,400 acres. The seed is sown at the end of the rains and the plants mature after six years. Picking is carried on at the beginning of the rainy season, only the new leaf being plucked. After picking, the tea leaves are boiled for about fifteen minutes, and then rolled and crushed by hand. The resultant pickle is then rammed tight into hollow bamboos or bamboo baskets, in which it is sent down the river. The trade is declining yearly. A few years ago large quantities of tea seed were bought by Assam planters and exported via Manipur, but the trade has entirely ceased, because, it is said, one or two consignments went bad. Cultivation is extending rapidly,

particularly in the Kale valley, which is recovering from Chin raids, and is now on the high road to its ancient prosperity. Extensions are encouraged by the low rate of assessment on state land—one-tenth of the produce, which is much below the average rent paid by tenants of private lands to their landlords. In the Mingin subdivision practically all the available land has been brought under cultivation, and further expansion is impossible. The District as a whole, however, could easily support ten or twenty times its present population.

Improvements in agricultural practice.

No new kinds of seed have been introduced, the people being fully content with such varieties as they possess and chary of adopting agricultural novelties. No loans have yet been granted under the Land Improvement Loans Act, but advances have been made freely to agriculturists for the purchase of buffaloes under the Agriculturists' Loans Act. These advances are eagerly sought after, and very rarely abused. The average amount lent during the six years ending 1904 exceeded Rs. 15,000 per annum.

Cattle, &c.

Buffaloes are bred and are universally used for cultivation; they are of a good type, and it is rare to see one out of condition. In the large villages natives of India keep herds of cows for milking purposes, but, unlike the cattle owned by Burmans, the beasts are usually in wretched condition. Ponies are not common, and are mostly small and weedy; and sheep and goats are rare. There is abundant grazing everywhere, and the fodder question is never likely to be acute.

Irrigation.

The only form of irrigation practised is the diversion of the contents of the shallower streams over the adjoining fields by means of small channels. The area thus dealt with amounted to 31 square miles in 1903–4. Ordinarily, however, the rainfall is sufficient to bring the rice to maturity without artificial aid. In a year when the wet-season rice fails, the method of irrigation described above is largely resorted to for raising the *mayin* or dry-season rice, a crop usually thought but little of. The many streams with which the District abounds offer splendid facilities for irrigation, of which, however, the cultivator does not usually take the trouble to avail himself.

In the upper portion of the District dry-season rice is extensively grown in several large *jhīls*. It is estimated that the Minya *jhīl*, if fully cultivated, would produce enough rice to feed the whole population of the Homalin subdivision for six months. Fishing is carried out in most of these stretches of water, as well as in the bed of the Chindwin, and the fishery revenue exceeds Rs. 10,000 per annum.

Forests. The District is comprised in the Upper Chindwin and Myittha Forest divisions, the former of which has its head-quarters at Kindat and the latter at Mingin. The Mansi sub-division of the Upper Chindwin division includes a small portion of Kathā District. The whole District is covered with forests, and timber abounds in infinite variety. There are no less than 33 teak forests, and many fine teak-bearing tracts are not yet 'reserved.' Perhaps the most remarkable forest and the only one on level ground is the Mahamyaing, situated on an extensive plateau in the south-eastern portion of the District. It is evergreen and full of grand timber, and is known among local Burmans as the *tawgyi* or 'great forest.' The following are the most characteristic trees: teak, which is extensively worked and exported to Rangoon by the Bombay Burma Trading Corporation; *pyingado* or *pyin* (*Xylia dolabriformis*), one of the hardest and most durable timbers of the Province; *ingyin* (*Pentacme siamensis*) and *thitya* (*Shorea obtusa*), both excellent for house-building; *yamane* (*Gmelina arborea*), now much used for boat-building; *shaw* (*Sterculia sp.*), from the bark of which ropes are twisted; *in* (*Dipterocarpus tuberculatus*) and *kanyin* (*D. alatus*), neither of them very durable woods, but felled largely for the supply of fuel to steamers; and the *thitsī* or wood-oil tree (*Melanorrhoea usitata*), which is one of the most valuable in the forests. From the *thitsī* areas of the Mingin subdivision alone wood-oil to the value of about Rs. 10,000 is exported yearly to Pagan and elsewhere, to be used as lacquer. Cutch is found in the vicinity of Sihaung in the Kale valley, but it has not been much worked. A cutch Reserve has, however, recently been formed. Of other minor forest products bamboos and canes are the most important; immense quantities of them are floated yearly down the Chindwin to the Districts of the dry zone. The District contains 2,070 square miles of 'reserved,' and 6,160 of unclassed forest. The net forest revenue in 1903-4 was 3 lakhs.

Minerals. Coal exists in large quantities, but has been found so far in localities where it would not at present pay to work it. A portion of the carboniferous tract between the Yu and Myittha rivers was explored by Dr. Noetling, who declared the coal to be of good quality, comparing favourably with the best Indian kinds. Dr. Noetling has estimated that in this area alone, to which all the coal in the District is by no means confined, more than 100 million tons of workable coal could be obtained above the level of the Chindwin. With improved communications there seems no reason why these fields should

not, in course of time, be developed. Mineral oil occurs in several places, most plentifully within the coal-bearing tracts. Gold-dust is found in the Chindwin and other streams which flow into it from the east, but appears to be most plentiful in the Uyu river and its tributaries; in fact, some of the inland villages in the Maingkaing township have had a gold currency from time immemorial. Rubies and sapphires have also been discovered on or near the Uyu. None of the above minerals, however, has as yet been systematically worked. Jade is found on the Nantaleik *chaung* near Tamanthi, and on the Namsam stream, which is the boundary between the Upper Chindwin and Myitkyinā Districts in the extreme north-east. No stone, however, has been quarried in the mines on the Nantaleik since the annexation. Amber mines have been worked within the last ten years in the Epin valley, in the abandoned tract between Haungpa on the Uyu and the Chindwin. Pottery clay is fairly common, but is made little use of. Salt springs are found at Yebawmi on the Uyu, and boiling is carried on there to a small extent.

Arts and manufactures. The District is concerned mainly with the production of raw material, and has little to show in the way of arts and manufactures. The only characteristic industry is the weaving of Yaw *pasos* (waistcloths), which is carried on at Indin and several other villages in the extreme south of the Kale valley. These *pasos* are dyed with indigo grown locally, and are well known for their excellent wearing qualities.

Commerce and trade. The chief exports are paddy, teak, wood-oil, bamboos, and beeswax. Teak is exported mainly by the Bombay Burma Trading Corporation under contract with the Government, and duty is paid on its arrival at Pakokku. It is taken down in large rafts and sold in Rangoon. In 1901, more than 1,000,000 cubic feet of teak were exported from the District. Wood-oil is extracted mainly from the *thitsī* forests (*Melanorrhoea usitata*) of the Mingin subdivision, and is shipped in boats at Maukkadaw and sold at Pagan and other centres of the manufacture of lacquer-ware. About 300 maunds, valued at Rs. 10,000, are exported yearly. The tappers are poor people from the Mingin subdivision and the borders of Shwebo District, and the profits of the industry go mainly into the pockets of middlemen. In an ordinary year the District produces more than enough rice for its own consumption, and large quantities are available for export to Lower Burma. The grain goes down mainly by river, the paddy raft, with its cluster of thatch-roofed granaries and central hut, being a familiar sight on the Chindwin. The differ-

ence in prices makes the possibilities of the rice trade large. Most of the profits are usually absorbed by the brokers. Bamboos and canes are also largely exported to the dry zone Districts. The two Shan States in the District exchange rubber, beeswax, bamboos, and paddy for salt, sesamum oil, kerosene, and piece-goods. Rubber is exported from Zingkaling Hkamti and paddy from Hsawnghsup, and some of the jade extracted from the mines in Myitkyinā District passes by river through Kindat on its way south. There is very little trade with Manipur and Assam; but the tribes in the unadministered tract on the border come down at times with beeswax, which is bartered for salt and iron, and exported eventually to Mandalay.

The principal imports are salt, iron, and silk and cotton goods of European manufacture. The Irrawaddy Flotilla Company's steamers, which on the Chindwin are practically floating bazars, bring up large quantities of salt during the rains, when the river is high, as far as Homalin, whence it is distributed by boats, and finds its way as far north as the tribes who live beyond the Chindwin waterfall, close to the borders of Assam.

Means of communication. There are no railway lines, but the District possesses about 400 miles of unmetalled roads, maintained chiefly from Provincial funds. The most important of these are the road to the Kabaw valley and Manipur via Sittaung and Tamu; that to the Chin Hills via Kalewa and Kalemyo; the track from Kindat to Homalin via Paungbyin; the road to the Yaw valley via Mingin, Seiktha, and Pya (kept up mainly by the Forest department); and that to the Kabaw valley via Mawku and Teinkaya (maintained entirely by the Forest department). In the Hsawnghsup State one track connects Tamu and Hsawnghsup, and a second from Hsawnghsup leads over the hills to Manipur. A path available for mules in the dry season leads from Hkamti on the Chindwin to Haungpa on the Uyu. During the rains, however, land communications are defective, and at all times waterways play an almost more important part in the economy of the District. The Chindwin, running through the entire length of the District, is its main highway. During the rains it is navigable by steamers of 4 feet draught almost up to the rapids, nearly 600 miles from its junction with the Irrawaddy, while in the dry season shallow-draught stern-wheelers can go beyond Tamanthi, about 400 miles from its mouth. The Uyu and Myittha rivers are deep enough for small launches during a portion of the rainy season, the former for 150 miles from its mouth, the latter for some little

distance into the Kale valley. The steamers of the Irrawaddy Flotilla Company ply weekly between Pakokku and Homalin, and Government launches run weekly between Mandalay and Homalin. The chief indigenous method of inland navigation is by means of country boats called *londwins*. The Chindwin, the Myittha, the Yu, and the Uyu are navigable by these the whole year round.

District subdivisions and staff. For administrative purposes the District is divided into four subdivisions: Kindat, comprising the KINDAT and TAMU townships; Kale, comprising the MASEIN, KALEWA, and KALE townships; Mingin, comprising the MINGIN and KYABIN townships; and Homalin, comprising the PAUNGBYIN, HOMALIN, and MAINGKAING townships. Under the township officers are 4 *myothugyis* and 454 village headmen, 21 of whom are empowered to try petty civil disputes. The two Shan States are administered by their own Sawbwas much in the same way as other Shan States, but in certain matters they are under the control of the Deputy-Commissioner. The subdivisional officer at Homalin discharges in these States all the functions of an Assistant Superintendent of the Shan States. The District forms a subdivision of the Chindwin Public Works division, the Executive Engineer having his head-quarters at Monywa in the Lower Chindwin District.

Civil justice and crime. The Deputy-Commissioner and the subdivisional and township officers preside over the District, subdivisional, and township courts. The civil courts are mostly concerned with money-lending transactions of a petty nature; but wherever public works are in progress on a large scale, a crop of civil suits arising out of disputes between contractors and coolies invariably springs up. Litigation of this nature is commonest at Kalemyo, where there is always some road-work in progress. Suits for large sums are rare. In order to provide facilities for laying appeals in the remoter parts of the District, the subdivisional officer of Homalin has been made an additional judge of the District court.

Crime is light, the people being quiet and law-abiding, especially the Shan population in the northern half of the District. Opium cases alone are common, most of the Shans being addicted to the drug, while smuggled Shan and Kachin opium is very easy to procure. The amounts seized are, however, usually small, the average being 4 to 5 tolas.

Revenue administration. Shortly after annexation a *thathameda* tax of Rs. 10 per household was imposed on the inhabitants, and has been collected at about this rate ever since. In 1887–8 the total

realizations from *thathameda* amounted to Rs. 80,600. In 1891–2 the District was finally pacified, and the demand rose to Rs. 2,23,000. It reached its highest in 1893–4, when it touched Rs. 2,69,000. In 1903–4 it fell to Rs. 2,65,000, the decrease being due to steps taken to avoid an over-minute subdivision of households. As soon as the District officers had time to turn their attention from the work of pacifying the country to revenue matters, inquiries began to be made as to the existence of state land. The first regular assessment of land revenue was in 1888–9, the demand from state land being a fixed proportion of the gross produce varying from 20 to 30 per cent., based on the rates paid in the neighbourhood by tenants of non-state land to their landlords. At first it was collected in kind, stored at the cultivators' risk, and sold when the market was favourable. The demand in 1888–9 was only Rs. 2,000. In the ensuing year an effort was made to prevail on the agriculturists to pay their revenue in money instead of in kind, but the attempt was not altogether successful. In 1891 great difficulty was experienced in collection, the year being one of considerable scarcity all over the District, and in 1892 the demand was fixed at one-quarter of the produce and collected in money. Again there were obstacles in the way of realization, and indeed the revenue was never collected in full. The people of the Kale valley, from whom the Kale Sawbwa used to take no fixed revenue at all but only such sums as he might from time to time happen to want, were the most stubborn opponents of taxation. In 1893–4 the demand was Rs. 57,000, and the arrears Rs. 44,000; in 1894–5, out of a demand of Rs. 21,000, there were arrears to the extent of Rs. 13,500. In time it was found not only that the revenue rates were pitched too high, but also that the collections were made before the cultivator had time to dispose of his crops to the best advantage. In 1895–6 the rate was reduced to 10 per cent. of the out-turn, yielding only Rs. 17,000; and at this rate revenue has been collected ever since without difficulty. In the following year the whole of the Homalin subdivision was declared state land and assessed to revenue, the total District demand being Rs. 45,000. Since then up to 1900–1 there has been a small increase, due to extensions of cultivation. There has been no regular settlement.

The table on the next page exhibits, in thousands of rupees, the fluctuations in the revenue during a succession of years. *Thathameda* is for the present the main source of revenue, yielding Rs. 2,65,000 in 1903–4.

	1890-1.	1900-1.	1903-4.
Land revenue	3	56	80
Total revenue	...	4,33	4,07

Local funds.

The income of the District fund for the provision and maintenance of roads, *dāk*-bungalows, &c., amounted to only Rs. 3,000 in 1903-4. The poverty of the fund is due to the failure of the attempt to make the people patronize Government bazars, the most fruitful source of District fund income elsewhere. No municipalities have been constituted.

Police and jails.

The four police subdivisions under the control of the District Superintendent of police correspond to the four administrative subdivisions. An inspector supervises each of the subdivisions of Homalin, Kalewa, and Mingin, and an Assistant District Superintendent is ordinarily in charge of the Kindat subdivision. There are 11 police stations and 8 outposts; and the force consists of 4 inspectors, 11 head constables, 24 sergeants, and 302 constables. An assistant commandant and 640 men of the Chindwin military police battalion are stationed in the District, 514 of the men being natives of India and 126 Karens; but the strength of the force is reduced to 400 in the rains. About 200 to 300 military police are stationed in the extreme north as a protection against wild tribes, about 100 in Kindat, and the rest mainly at township and subdivisional head-quarters. There is a District jail at Kindat, with accommodation for 100 prisoners. The convicts are mainly employed in grinding wheat for the military police.

Education.

It is a curious fact that in 1891 the Upper Chindwin showed a larger proportion of males able to read and write than any other District in Burma, and that in 1901 it came second only to Minbu in this regard. Our knowledge of the actual conditions obtaining in the District leaves no doubt, however, that the literacy of the Upper Chindwin males in 1891 and 1901 must have been of the most primitive description. As a matter of fact, education in its stricter sense has so far made hardly any progress, and until quite recently the Upper and Lower Chindwin Districts were under the charge of a single deputy-inspector of schools. Since 1902, however, a separate deputy-inspector has been appointed for the Upper Chindwin, and it is hoped that an advance will now be made in education. For the District as a whole the proportion of literate persons was 27·5 per cent. (53 males and 2 females) of the population in 1901. The number of pupils was 623 in 1891, 2,516 in 1901, and 3,757 in 1904 (including 130 girls). In

1903–4 there were 30 primary and 343 elementary (private) schools. The only Anglo-vernacular (primary) school is at Kindat, and contains about 20 pupils. The expenditure on education is met by a grant of Rs. 1,800 from Provincial funds.

Hospitals. The Upper Chindwin is well off for medical institutions, containing 6 civil hospitals with 56 beds. In 1903 the number of cases treated was 30,785, including 573 in-patients, and 291 operations were performed. The expenditure amounted to Rs. 11,000, made up, with the exception of Rs. 850 from subscriptions, entirely of grants from Government. At the three military police hospitals 1,560 cases were treated in 1903, including 29 in-patients, and 11 operations were performed.

Vaccination. Vaccination is progressing, though much yet remains to be done, and it is nowhere compulsory. In 1903–4 the number of persons successfully vaccinated was 10,410, representing 67 per 1,000 of population.

[F. Noetling, *The Coal Fields of the Upper Chindwin* (1893).]

Kindat Subdivision.—Central subdivision of the Upper Chindwin District, Upper Burma, containing the KINDAT and TAMU townships.

Kindat Township.—Central township of the Upper Chindwin District, Upper Burma, stretching across the Chindwin river from the Yoma in the west to Shwebo District in the east, between 23° 25′ and 23° 58′ N. and 94° 18′ and 95° 2′ E., with an area of 1,715 square miles. It is covered with forest, thinly populated, and, except in the immediate neighbourhood of the Chindwin, hilly. The population was 11,429 in 1891, and 13,946 in 1901, distributed in 117 villages and one town, KINDAT (population, 2,417), the head-quarters. The area cultivated in 1903–4 was 21 square miles, and the land revenue and *thathameda* amounted to Rs. 42,000.

Tamu.—Township in the Upper Chindwin District of Upper Burma, lying between 23° 35′ and 24° 20′ N. and 94° 1′ and 94° 33′ E., with an area of 960 square miles. The population was 4,426 in 1891, and 5,264 in 1901, made up of Burmans, Shans, and Chins in the proportions of 33, 9, and 7, and inhabiting 48 villages. Tamu (population, 905), in the north of the valley, is the head-quarters. The inhabited area lies mostly along the valleys of the Khampat and Yu streams, both of which rise in the mountains of Manipur, and flow, one in a northerly, the other in a southerly direction, to meet and run eastwards into the Chindwin. The area cultivated in 1903–4 was 16 square miles, and the land revenue and *thathameda* amounted to Rs. 14,000.

Kale Subdivision. — South-western subdivision of the Upper Chindwin District, Upper Burma, containing the MASEIN, KALEWA, and KALE townships.

Masein.—Southern township of the Upper Chindwin District, Upper Burma, extending from the Yoma in the west across the Chindwin river to Shwebo District in the east, between 23° 10′ and 23° 35′ N. and 94° 15′ and 94° 58′ E., with an area of 1,334 square miles. The population, which is wholly Burman, was 12,646 in 1891, and 14,365 in 1901, distributed in 156 villages. Masein (population, 1,118), on the Chindwin river, about 30 miles below Kindat, is the head-quarters. The whole of the township is a network of small hills and narrow valleys. The area cultivated in 1903-4 was 26 square miles, and the land revenue and *thathameda* amounted to Rs. 40,000.

Kalewa Township.—Southern township of the Upper Chindwin District, Upper Burma, lying on either side of the Chindwin river, between 23° 1′ and 23° 17′ N. and 94° 14′ and 94° 30′ E., with an area of 184 square miles, nearly the whole being a mass of low hills. The population was 3,535 in 1901, distributed in 36 villages. The head-quarters are at Kalewa (population, 1,036), situated at the junction of the Myittha and Chindwin rivers, about 40 miles below Kindat. The area cultivated in 1903-4 was 11 square miles, and the land revenue and *thathameda* amounted to Rs. 10,000. The township was formed after the Census of 1901.

Kale.—South-western township of the Upper Chindwin District, Upper Burma, lying along the eastern slopes of the Chin Hills, between 22° 40′ and 23° 41′ N. and 93° 58′ and 94° 16′ E., with an area of 816 square miles. The population was 10,691 in 1901, distributed in 94 villages, Kalemyo (population, 881), on the Myittha stream, about 20 miles from its mouth, being the head-quarters. The township, which possesses a pestilential climate, consists of the valleys of the Myittha and its tributary the Neyinzaya *chaung*, which flows past the village of Yazagyo in a southerly direction to meet it. The area cultivated in 1903-4 was 34 square miles, and the land revenue and *thathameda* amounted to Rs. 34,000. The township was formed after the Census of 1901.

Mingin Subdivision.—South-eastern subdivision of the Upper Chindwin District, Upper Burma, containing the MINGIN and KYABIN townships.

Mingin Township.—South-eastern township of the Upper Chindwin District, Upper Burma, lying on either side of the

Chindwin river, between 22° 36′ and 23° 12′ N. and 94° 22′ and 94° 55′ E., with an area of 1,311 square miles. It consists throughout of low hills. The population, which is almost wholly Burman, was 21,015 in 1891, and 19,941 in 1901, distributed in 141 villages. The head-quarters are at Mingin (population, 1,815), on the Chindwin river, about 80 miles below Kindat. The villages lie on the Chindwin and its tributaries, the Maukkadaw stream on the north and the Patolin on the south. The area cultivated in 1903–4 was 37 square miles, and the land revenue and *thathameda* amounted to Rs. 42,000.

Kyabin.—Southernmost township of the Upper Chindwin District, Upper Burma, lying between 22° 36′ and 23° 10′ N. and 94° 12′ and 94° 33′ E., with an area of 800 square miles. The population was 7,316 in 1891, and 9,954 in 1901, distributed in 90 villages, Kyabin (population, 338) being the head-quarters. The township lies entirely in the valley of the Taungdwin, which is landlocked, except on the north, and sparsely populated. The area cultivated in 1903–4 was 18 square miles, and the land revenue and *thathameda* amounted to Rs. 26,000.

Homalin Subdivision.—Northern subdivision of the Upper Chindwin District, Upper Burma, containing the PAUNGBYIN, HOMALIN, and MAINGKAING townships. The head-quarters are at Homalin.

Paungbyin.—Central township of the Upper Chindwin District, Upper Burma, extending on either side of the Chindwin river from the Yoma to Kathā District, between 23° 48′ and 24° 35 N. and 94° 32′ and 95° 12′ E., with an area of 2,719 square miles. Except in the valley of the Chindwin, it is a mass of low hills. The population was 19,190 in 1891, and 26,409 in 1901, distributed in 268 villages, of which the most important is the head-quarters, Paungbyin (population, 1,167), on the Chindwin, about 70 miles north of Kindat. The area cultivated in 1903–4 was 40 square miles, and the land revenue and *thathameda* amounted to Rs. 68,000.

Homalin Township. — North-western township of the Upper Chindwin District, Upper Burma, lying along the Chindwin on either bank, between 24° 44′ and 26° 0′ N. and 94° 43′ and 96° 0′ E., with an area of 2,524 square miles. It is a mass of hills, comparatively low in the east, but rising in the west to a considerable height. The population, which is almost entirely Shan, was 11,000 in 1891, and 17,624 in 1901, distributed in 166 villages. The head-quarters are at Homalin

(population, 1,241), on the Chindwin river, 130 miles above Kindat, and the highest point ordinarily visited by the Irrawaddy Flotilla Company's steamers. The area cultivated in 1903–4 was 32 square miles, and the land revenue and *thathameda* amounted to Rs. 30,000.

Maingkaing.—North-eastern township of the Upper Chindwin District, Upper Burma, comprising the basin of the Uyu river, and lying between 24° 22′ and 25° 48′ N. and 94° 41′ and 96° 20′ E., with an area of 4,665 square miles. The population, which is almost wholly Shan, amounted approximately to 11,000 in 1891, and to 23,303 in 1901, distributed in 248 villages. Maingkaing (population, 470), on the Uyu river, about 30 miles from its mouth, is the head-quarters. The population is confined to the banks of the Uyu and a few of its tributaries. Except for a few patches of level ground near the Uyu, the whole country is a maze of hills. The greater part of the township is dense jungle, and is exceedingly unhealthy. The area cultivated in 1903–4 was 29 square miles, and the land revenue and *thathameda* amounted to Rs. 39,000.

Kindat Town.—Head-quarters of the Upper Chindwin District, Upper Burma, situated in 23° 44′ N. and 94° 26′ E., on the left bank of the Chindwin river, about 200 miles from the point at which that stream flows into the Irrawaddy. Population (1901), 2,417. The town is well wooded, but low-lying and in many ways unfavourably situated, as in the dry season it is separated by a wide expanse of sand from the river channel and the steamer *ghāt*, and during the rains it occupies a narrow strip of land bounded on one side by the stream and on the other by a large *jhīl* and swampy ground. It is faced across the stream by low wooded hills, but on its own side of the river the immediate surroundings are flat and uninteresting. The native town stretches for some distance along the bank; the civil station lies at its northern end; the jail occupies the farther end of the civil station, and the military police lines are located to the north again of the jail. The civil station, which is protected by embankments from the encroachment of the river on one side and of the *jhīl* on the other, contains the District court and circuit house, the residences of the local officials, and the club. The civil hospital and the post and telegraph offices are in the native quarter. Kindat was a frontier post of some importance in Burmese times, but has never succeeded in attracting much trade, and is still nothing more than a village. The hospital contains sixteen beds, and there is a small Anglo-vernacular school. Kindat is

not a municipality, and can boast of little in the way of roads or other public improvements.

Hsawnghsup (*Thaungdut*).—A Shan State within the boundaries of the Upper Chindwin District, Upper Burma, over which the Deputy-Commissioner of that District exercises a certain control. It lies almost wholly to the west of the Irrawaddy, between 24° 5′ and 24° 56′ N. and 94° 22′ and 94° 43′ E. On the north it is bounded by the Homalin township; on the west by Manipur; and on the east and south by the townships of Paungbyin and Tamu. The main hill system of the Upper Chindwin District commences in the extreme north of the State, and covers the greater portion of it; between this range and Manipur is the upper end of the Kabaw valley, in which the old capital of Thaungdut is situated. A few hamlets lie in this valley, but otherwise the population of the State is confined almost entirely to the villages on the Chindwin, one of which is the capital, Thaungdut (population, 868). The rest of the country is dense forest. Previous to annexation Hsawnghsup had been a vassal State of Burma, and the Sawbwa ruling in 1886 was friendly to the British, and remained loyal throughout the Wuntho rebellion, although related to the Wuntho Sawbwa. The area of the State is about 579 square miles, and the population (estimated at 6,200 in 1897) was found to be 7,471 in 1901. Of this total, 57 per cent. are Shans, 35 per cent. Burmans, and the remainder Chins, the whole being distributed in 84 villages. Under the Sawbwa are *myo-oks* in charge of townships, who are responsible for the revenue, civil, and criminal administration of their charges. Regular taxes were first imposed in 1890, and under the present Sawbwa *thathameda* is levied at Rs. 10 per household. There are no other taxes. The revenue amounts to about Rs. 8,000, Rs. 400 being payable as tribute to the British Government. Order is kept by a force of about 30 police, armed with guns and *das*. There is a small export trade in paddy.

Zingkaling Hkamti State (*Zingalein Kanti*, or *Kantigale*).—A Shan State lying to the south of the Hukawng valley in the extreme north of the Upper Chindwin District, Upper Burma, and subject to the control of the Deputy-Commissioner of that District. It is situated on each side of the Chindwin, between 25° 30′ and 26° 5′ N. and 95° 4′ and 96° 10′ E., but is cut in two by a strip of the Homalin township some 8 to 15 miles wide, running east and west across it. Its area is 983 square miles. The villages are nearly all

situated on the river bank, though a few Kachin hamlets lie in the interior on the road to Haungpa on the Uyu river. The inhabitants are mostly Shans, who are said to have come from Hkamti Long in olden days, displacing other Shans who had previously dispossessed the original Kachin inhabitants of their lands. When annexed by the British, the State was suffering from the result of raids by the Kachins and was practically in their hands. It then contained only four or five villages, but has since increased and prospered. There are still five Kachin (Theinbaw) villages in the State, and a few Chins on the west of the Chindwin who ignore the authority of the Sawbwa. From eight Shan villages in 1889 the number had increased by 1901 to twenty-four. The population, excluding the wilder Kachin and Chin inhabitants, whom it was thought inadvisable to attempt to enumerate, was 2,048 in 1901. Of these about 1,500 were Shans and nearly 400 Burmans. The revenue, which amounts to only Rs. 2,300, is derived from *thathameda*, levied at the rate of Rs. 5 per house, and certain tolls and dues. The tribute to the British Government is Rs. 100. The Sawbwa possesses 30 flint-lock guns, and could put in the field a force of 30 musketeers and 100 men armed with *linkin das*. The State exports canes, beeswax, india-rubber, and jade.

MEIKTILA DIVISION

Meiktila Division.—South-eastern Division of Upper Burma, lying wholly in the dry zone, between 19° 27′ and 22° 1′ N. and 94° 43′ and 90° 54′ E., with an area of 10,852 square miles. It comprises four Districts, Kyaukse, Meiktila, Yamethin, and Myingyan. Kyaukse, Meiktila, and Yamethin lie, one south of the other in the order named, on each side of the Mandalay-Rangoon railway, while Myingyan extends westwards from the borders of Kyaukse and Meiktila to the Irrawaddy. The Division is bounded on the north by Mandalay and Sagaing; on the east by the Southern Shan States; on the south by Toungoo and Magwe; and on the west by Minbu, Pakokku, and Sagaing. The population was 901,924 in 1891 and 992,807 in 1901. The distribution in the latter year is shown in the following table:—

District.	Area in square miles.	Population in 1901.	Land revenue and *thathameda* in 1903-4, in thousands of rupees.
Kyaukse . . .	1,274	141,253	8,62
Meiktila . . .	2,183	252,305	5,13
Yamethin . . .	4,258	243,197	5,20
Myingyan . . .	3,137	356,052	6,68
Meiktila Division	10,852	992,807	25,63

There are 4,415 villages and 6 towns: MYINGYAN (population, 16,139), PYINMANĀ, in Yamethin District (14,388), YAMETHIN (8,680), MEIKTILA (7,203), NYAUNGU-PAGAN (6,254), and KYAUKSE (5,420). The head-quarters are at Meiktila, situated near the centre of the Division, and connected by rail with the three outlying District head-quarters. Myingyan is a commercial centre of some importance, and Yamethin and Pyinmanā are trade centres. The population is almost exclusively Burmese, the total number of Burmans in 1901 being 963,228. The only other indigenous races found in any strength are the Shans, inhabiting the hills on the borders of the Shan States, who numbered 2,071 at the last Census, and

the Karens (2,718), who approach their northernmost limit in Burma proper in the Yamethin hills. There were 14,536 Musalmāns and 5,143 Hindus in 1901, of whom the greater number, though not all, were natives of India.

Kyaukse District.—Northernmost District of the Meiktila Division, Upper Burma, lying entirely in the dry zone, between 21° 12′ and 22° 1′ N. and 95° 57′ and 96° 54′ E., with an area of 1,274 square miles. It is bounded on the north by the Myitnge river, which separates it from Mandalay District; on the east by the Shan States of Lawksawk and Maw; on the south by Meiktila District; and on the west by Myingyan and Sagaing. Boundaries, configuration, and hill and river systems.

Kyaukse consists of a strip of plain land running north and south parallel to the line of the Shan hills, and of a stretch of hilly country, known as Yeyaman, extending eastwards from the northern end of the level plain into the heart of the Shan uplands. This latter tract, which is bounded on the north by the Myitnge, and on the east and south by Lawksawk and Maw, has an area of about 711 square miles, or more than one-half of the total area of the District. It is, however, very rugged and mountainous, and deeply scored with ravines, and has a very sparse population.

Extending from the Yeyaman tract to the south runs the Kinle range, forming part of the eastern boundary of the District. Near the southern end of these hills is an eminence known as the Natteik, about 5,000 feet high, the highest point in the range, at the foot of which a pass leads into the Southern Shan States, used by caravans to and from Myittha, a village on the railway 12 miles south of Kyaukse. West of the Yeyaman tract and the Kinle range the surface of the country is generally level, except for some outlying groups of low hills, which rise abruptly from the surrounding plains east of the railway to heights ranging from 600 to 1,600 feet above the sea. These masses of rock, which are rough and steep, are covered with sparse jungle and stunted trees, and stand up like islands out of the cultivated level that encircles them. The plain covers an area of 565 square miles, and has a gentle slope from south to north.

The scenery of Kyaukse is varied and picturesque. In the irrigated plains, where crops of different kinds follow one another in quick succession, the breadth of view and blending of colours make a charming and ever-changing picture. In the Yeyaman tract the prospect is rugged but fine. Thick forest clothes the hill slopes, and the villages are very few and

widely scattered. The Myitnge, Nam Tu, or Doktawaddy river, which forms the northern boundary of the District for 60 miles, rises in the Northern Shan States, and joins the Irrawaddy at Ava in Sagaing District. It flows from east to west, and is navigable up to the foot of the hills by small steamers and country boats of all descriptions. Its width is from 200 to 350 yards, and it runs between high, firm banks, studded with villages, gardens, and mango groves. The railway crosses it by a bridge in the extreme north of the District. The Panlaung rises on the borders of Yamethin District and the Shan States, flows diagonally across the District from its south-eastern to its north-western corner, and empties itself into the Myitnge near where that stream enters the Irrawaddy. Its only affluent worthy of mention is the Samon, which comes in from Meiktila District, runs northwards, almost parallel to it, and joins it at Shabin in the north-west of the District. The Samon is navigable by small boats during the rainy season, and then only as far as Paukmyaing in the Myittha township. It is liable to sudden floods, and, its bed being low, it is useless for irrigation. The Zawgyi river waters the northern portion of the District, and is not navigable. It rises in the Shan hills, reaches the plain near Taungdaw in the east of the Kyaukse township, flows in a north-westerly direction past the town of Kyaukse, and eventually empties itself into the Myitnge some distance to the east of its junction with the Irrawaddy. During the dry season it is very shallow, its water being taken off by canals; but in the rains it becomes swift and turbulent, and a constant source of danger to the railway line, which crosses it at two points.

Kyaukse contains no lakes properly so called, but there are several large swamps, the chief of which are the Sunye and Minhla tanks, and the Paleik and Inhlya fisheries.

Geology. Little is known of the geology of the District; but it includes the western edge of the Shan plateau, where crystalline rocks are largely developed, forming bands of crystalline limestone. In the hills, granite, marble, limestone, sandstone, and light clays predominate, and in the valleys rich alluvial leaf-mould and loam. The soil of the irrigated plains is chiefly black loam, with a layer of leaf-mould silt deposited by the canals. In the unirrigated tracts, in the strip of land bordering the hills on the east, red clay or red clay mixed with gravel prevails, while to the west of the Samon the levels are composed chiefly of black cotton soil.

Botany. Only shrubs and small trees are usually met with in the

plains. Here bamboos are scarce, and such as are used come chiefly from the Shan hills and the Yeyaman tract. In the hills the vegetation is richer. On the higher ground pine and stunted oak occur, and on the lower slopes *pyingado* (*Xylia dolabriformis*) and a certain amount of teak.

Tigers are found, but only occasionally. Leopards, on the other hand, are fairly numerous in several parts of the District. Barking-deer, wild hog, *thamin* (brow-antlered deer), and *sāmbar* are sometimes met with in the uncultivated tracts. At the proper season the paddy-fields abound with snipe. Fauna.

Kyaukse is situated in the centre of the dry zone, and its climate is hot and arid. The rainy season does not usually commence before July, and generally ends in October, though occasional heavy downpours during April, May, and June bring temporary relief. The cold season lasts from about the middle of November to the end of February. The thermometer then ranges, as a rule, between 47° at night and 84° in the hottest part of the day. From March to July during the hot season a temperature of as much as 105° in the shade is not uncommon. Strong winds throughout the day, however, render this heat less oppressive than it might otherwise be. During November, December, and January the mornings and evenings are sometimes very cold, and heavy mists hang over the face of the earth. Fever of a very severe type, from which many deaths occur, is prevalent at this time. Climate, temperature, and rainfall.

During the ten years ending 1901 the annual rainfall averaged 29 inches over the plains of the District, being heaviest at Taungdaw, at the foot of the Shan hills. The rains are variable, however, and unevenly distributed. The lightest fall during the decade was 20½ inches at Paleik in the north, and the heaviest 40 inches at Kume, in the south, registered in 1896 and 1899 respectively. In the hilly Yeyaman tract there is no registering station, but it is estimated that about 40 or 50 inches fall in the year.

The Zawgyi, Panlaung, and Samon rivers are all liable to overflow their banks during the rains. The most destructive flood recorded of late years occurred in August, 1898, when a great part of the District west of the railway line, which was breached south of Kyaukse town, was inundated by the Zawgyi. The town itself was flooded on this occasion, and great damage was done to standing crops.

The non-legendary history of the District prior to the occupation of Upper Burma presents no features of special interest. During 1886, shortly after annexation, the Myin- History and archaeology.

zaing prince, who had escaped the general massacre of Mindon Min's descendants ordered by Thībaw, and was at the time seventeen years of age, headed a rebellion, the quelling of which gave the authorities considerable difficulty. He was driven out of Mandalay District in January, 1886, and, after being followed to Kyaukse, took up his head-quarters at Yakaing-gyi, 23 miles to the south-east. He was forced back into the Shan States by the establishment of posts at Paleik and Taloksu, in the north of the District, and south of Kyaukse a line of posts was formed on the road to Pyinmanā. At Kume, one of the line of posts, Captain Wilbraham and a lance-corporal of the Somersetshire Light Infantry were killed early in 1886. The prince died in August of the same year; but dacoits, frequently assuming his name, for some time made raids on the part of the District lying at the foot of the Shan Hills, and infested the jungles along the Samon and Panlaung rivers, where the nature of the country was adverse to rapid movements of troops except in the hot season. In 1887 considerable trouble was caused by a band of dacoits, who took refuge in the adjoining Shan State of Maw. They were twice dispersed, only to unite again under the Setkya Mintha, a pretender from Mandalay District, who appeared on the scene towards the end of the year. They were dispersed by an expedition loyally aided by the Shan ruler of Maw, but again raided the District in 1888. However, their leader was eventually captured by the Lawksawk Sawbwa, handed over to the authorities, and duly executed. One of his lieutenants, Kyaw Zaw, continued to harry the wilder hill tracts in the north-east for some time; but in due course he was forced to move into the Shan States, and the District may be said to have been finally settled in 1889, when the garrison of military police was considerably reduced.

Some shrines of note are situated in the District, the most important of which are the Shwepwinlan, Pandingu, Mataingda, Shwezedi, Pyetkaywe, Shwemoktaw, Shweminwun, Tonbo, Taungdaw, Shwesatthwa, and Shwethayaung pagodas. Most of these are said to have been built by king Anawrata in the eleventh century; but the Shwemoktaw near Daing in the Myittha subdivision is attributed to king Thiridhammathawka, and is declared to be over 2,000 years old. The Shwemoktho pagoda at the foot of Kyaukse hill is said to have been originally erected by the emperor Asoka, and to have been rebuilt by king Anawrata of Pagan to commemorate

the construction of the Kyaukse weir. It was kept in repair by the Burmese kings of the last dynasty. Annual festivals are held near the most important of these shrines, and are largely attended by the inhabitants of Kyaukse and other Districts.

Pinle and Metkaya in the south of the District were capitals of two of the Shan principalities which came into existence on the break up of the Pagan kingdom, and lasted from the middle of the fourteenth to the beginning of the sixteenth century. They were founded by three Shan brothers who dethroned king Kyawzwa, the son of king Narathihapade (nicknamed Tayokpyemin), in whose reign the Pagan dynasty collapsed. The history of two other cities, Hmaingmaw and Pyinmanā, has not been satisfactorily traced. Hmaingmaw is a Shan name, which suggests that this town also was built by Shans. According to one tradition, the original founder of this city was a Karen Sawbwa who assumed the name of Thudanu. This chieftain was a man of grossly evil habits; and the story runs that, as a punishment for his sins, the clouds rained sand till the city was buried and all its inhabitants were destroyed. The size of each city is about a mile square. The remains of the old walls are still visible, the bricks of which they were constructed having been very good. The old city of Myingondaing stood on the banks of the Panlaung to the north-east of Myittha, but only the walls are now in existence. When this town was built it is difficult to say, but it has been abandoned for a very long time, and thick jungle has sprung up within the walls.

The population of Kyaukse District was 126,622 in 1891 and 141,253 in 1901. Its distribution in the latter year is shown in the following table:— The people.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Singaing . .	825	...	169	40,123	49	+ 8	4,599
Kyaukse . .	172	1	231	44,378	258	− 3	9,896
Myittha . .	277	...	310	56,752	205	+ 30	11,673
District total	1,274	1	710	141,253	111	+ 12	26,168

KYAUKSE, the head-quarters, near the centre of the District, is the only town. The District is one of the most thickly

populated in Upper Burma. The density varies enormously from tract to tract; thus while the Kyaukse township exhibits the comparatively high figure of 258 persons per square mile, in Yeyamân the density is only about two. Between 1891 and 1901 the population of the Kyaukse township decreased, but the fall was confined to the town of Kyaukse and the rural area showed an increase during the decade. Immigrants from Mandalay, Sagaing, Meiktila, and Myingyan are numerous, but there has been no corresponding emigration to those Districts, nor has the emigration to Lower Burma been sufficient to cause a net decrease. This is to some extent due to the greater certainty of agricultural success in Kyaukse, owing to the protection afforded by canals. About 98 per cent. of the people are Buddhists. There were 3,400 Musalmāns and 700 Hindus in 1901, and the number of Christians was 438. Burmese is the vernacular of all the inhabitants except about 1 per cent., who chiefly speak Indian languages.

Race and occupation.

The number of Burmans in 1901 was 135,400, or just under 96 per cent. of the total population. There are a few Shans and Danus in the eastern part of the District, and the Indian immigrants numbered 1,200 in 1901. Only a portion, however, of the Musalmāns and Hindus enumerated in the District were pure natives of India. Several Musalmān villages are inhabited by the half-bred descendants of Mughal mercenaries who settled in the country several centuries ago, and the total of these Zairbādis was returned in 1901 as 2,800. The population directly dependent on agriculture in 1901 was only 52 per cent. of the total. The very low figure is explained by the fact that a large number of field-labourers were treated for enumeration purposes as coolies, and entered in the census returns under a non-agricultural head.

Christian missions.

There were 346 native Christians in 1901, the majority of whom were Roman Catholics. The Roman Catholic mission has three village churches, served by local priests, in the Singaing township. At Chanthagon are maintained a hospital and a boarding-school for Burmese orphans. The English Wesleyan Methodists manage an Anglo-vernacular school at Kyaukse, where there is a missionary.

General agricultural conditions.

The main feature of Kyaukse from an agricultural point of view is its system of irrigation, which has been in existence, in a more or less modified form, for many years. Both the plain and the hills on the eastern border, from which vast quantities of detritus are washed down annually, appear to

contain elements extraordinarily favourable for rice cultivation; and a judicious use of the streams that water the country has converted portions of it into vast fertile stretches, which it is hard to recognize as forming a part of the dry zone of Upper Burma, and which, according to tradition, have never been fallow for centuries. The most important agricultural area is the extensive irrigated tract lying, for the most part, in the long wedge of land between the Zawgyi and the Samon rivers, where the soil is watered chiefly by means of small distributaries, bringing the water to the fields from the main canals. The land, enriched with the silt brought down by the early rains, is thoroughly ploughed, generally by bullocks, but in the wetter tracts by the more powerful buffalo, and harrowed as early in the season as practicable. In a few of the best-irrigated lands *kaukyin* rice, sown broadcast in April and reaped in August, is followed immediately by *kaukkyi* rice, which has been sown in the nurseries in June and July and is transplanted late in August or in September, to be reaped in December and January. This rapid succession of crops naturally throws a considerable strain on the soil, and it is calculated that the out-turn of the second crop is reduced 33 per cent. by having to follow closely on the first. The earlier *kaukyin* rice is often sown in nurseries in March, transplanted in May, and reaped in August. *Mayin* rice is planted in December when water is available, and reaped between March and June. *Kaukkyi* rice does not as a rule do well after *mayin*, but in a few cases three crops a year have been gathered on one holding. Manuring, which is common, increases the out-turn by about 12 to 15 per cent. The place of the *kaukyin* rice, as a first crop, is often taken by early sesamum (*hnanyin*). When the irrigation is deficient or untimely, plantains are grown for two or three years, and then rice for two years. In the non-irrigated tracts, which lie for the most part to the west of the Samon river, cultivation depends directly on the timeliness of the rainfall, and here the harrow is used only when the rains have set in. On these lands *mogaung* (rain-irrigated) rice is grown as well as various 'dry' crops. In the hill tracts *taungya* (shifting) cultivation prevails. Before the monsoon breaks, the jungle on the hill slopes in the *taungya* areas is cleared and burnt, and when the rains set in the seed is inserted in small holes made with pointed bamboos. The harvest is reaped at the end of the rains, and when the soil is exhausted the *taungya*-cutter flits to a new clearing.

Chief agricultural statistics and principal crops.

The following table shows the main agricultural statistics of the District for 1903–4, in square miles :—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Singaing . .	825	67	47	625
Kyaukse . .	172	105	82	
Myittha . .	277	104	75	
Total	1,274	276	204	625

Of the area cultivated in 1903–4 the greater part, 187 square miles, was under rice, while early and late sesamum in nearly equal proportions covered 38 square miles. In the non-irrigated land in the south-west of the District, chillies are the standard crop, small portions of the holdings being devoted to late sesamum and tomatoes. The area under chillies amounts to 8,000 acres. Pulse has an acreage about the same as that of chillies, and orchards, covering 8,600 acres, are planted to a large extent on the richer irrigated lands. Of the total orchard area 7,000 acres consist of plantains, which are very numerous on the banks of the Zawgyi. Mango groves are plentiful along the course of the Myitnge river, and toddy palms are common on the Samon. Wheat is increasing in popularity, and the area under this crop in 1903–4 (4,200 acres) exceeded that of Mandalay, and was smaller only than that of Sagaing. The greater part of the District is state land, the cultivators being the tenants of Government; but there is a large amount of hereditary freehold known as *bobabaing*, i.e. ancestral or non-state land. Certain lands are held for life by members of the late Burmese royal family on special conditions. In some cases they enjoy exemption from both revenue and water rate; in others revenue is not levied, but the land is subject to water rate, and on others again reduced revenue rates are assessed. The total area of these special life-term grants is, however, only 866 acres.

Improvements in agricultural practice.

The cultivated area has increased by more than 40 per cent. since 1893–4, the first year of supplementary survey. From time to time new varieties of seed have been tried locally, among others Havana tobacco, but so far little success has attended the experiments made. Large sums of money are advanced every year under the Agriculturists' Loans Act to cultivators, to assist them in purchasing plough-cattle and seed-grain. These loans are eagerly sought after, and are undoubtedly an important factor in the increase of cultivation. They are usually made repayable in two years by instalments,

and little or no difficulty is experienced in recovering them. During the four years ending 1904 they averaged over Rs. 30,000 per annum.

Cattle, &c.

The Kyaukse buffaloes are inferior to the beasts ordinarily used in Lower Burma, but the bullocks are well bred, handsome animals. Ponies are fairly numerous, but are mostly undersized. There are a few flocks of sheep and numerous herds of goats belonging to natives of India, while in most villages hogs are kept by the Burmans.

Irrigation.

Kyaukse is remarkable for its complete system of irrigation, which dates, if local tradition is to be believed, from the days of king Anawrata of Pagan. Several of the works have since been remodelled, weirs have been rebuilt, and proper regulators and sluices have been introduced; but the credit for the initial scheme rests with the country's early rulers. The canals and their tributaries serve an area of nearly 400 square miles, covering the whole plain between the hills in the east and the Samon river in the west. The Panlaung, immediately after entering the District at its south-eastern corner, is crossed by the Kinda weir, from which starts a system of canals about 33 miles in length with 33 miles of distributaries, irrigating that part of the Myittha subdivision which lies to the right of the Panlaung, and commanding 78 square miles. So much of the Myittha subdivision as stretches between the Panlaung and the Samon is watered by canals starting from the Natlwe and Kyime weirs, lower down the Panlaung. The first system consists of one canal, 14 miles long, with a westerly course, which commands 23 square miles. The second includes one short water-cut and the Sama canal, which runs for 25 miles along the narrow strip of land between the Samon and the Panlaung, both together commanding 41 square miles. The Zawgyi soon after entering the Kyaukse subdivision is crossed by the Nwadet weir, whence the Nwadet canal starts from its left bank and follows the river to near Kyaukse. It is 27 miles long, has 45 miles of branches and distributaries, and commands 53 square miles. Below the Nwadet are two weirs where smaller channels branch off northwards from the right bank, at Ngapyaung and Thindwe. From the Minye weir at Kyaukse the Minye canal runs northwards past Bilin and the Tamok canal north-west towards the Panlaung, commanding between them 39 square miles. From the Zidaw regulator the Zidaw canal, 20 miles in length, zigzags across the line of the railway. With its Myaungzon branch, running northwest for 15 miles from the Sedo weir near Bilin, and 28 miles

of distributaries, it serves in all 64 square miles. The Zawgyi thus irrigates the whole of the Kyaukse subdivision between the hills and the Panlaung. In 1903–4 these canals supplied 204 square miles, about two-thirds from the Zawgyi system and one-third from the Panlaung. Each system is controlled by an Assistant Engineer under the Executive Engineer in charge of the Eastern Irrigation division, whose head-quarters are at Kyaukse. The gross expenditure on the canals in 1903–4 was 3 lakhs, Rs. 49,000 being spent on establishment, Rs. 76,000 on repairs, and 1·6 lakhs on works. The tract west of the Samon is irrigated to a limited extent by tanks, and, in the case of the fields at the foot of the hills, by small streams.

Forests. There are two 'reserved' forests, the Yeyaman and the Pyetkaywetaung. The area of the Yeyaman Reserve is 306 square miles, about one-third of which is teak-bearing. The teak is found chiefly towards the sources of the streams, the tract in the immediate vicinity of the river being covered with dry scrub growth, gradually merging into dry hill forest, in which *thitya* (*Shorea obtusa*), *ingyin* (*Pentacme siamensis*), and *padauk* (*Pterocarpus indicus*) are characteristic species. Along the crest of the higher ridges are found the Khasya pine, the *thitya*, *thitsī* (*Melanorrhoea usitata*), and other species. The Pyetkaywetaung Reserve, which is on the southern border of the District, east of the railway, has an area of 38 square miles. Before this forest was reserved, the western portion was being denuded of forest growth by fuel-cutters. The chief trees are *than* (*Terminalia Oliveri*), *ingyin*, *thitya*, teak, and *pyingado* (*Xylia dolabriformis*), while the south-western portion contains various bamboos and a few *padauk* trees. In addition to these two Reserves, there are 281 miles of unclassed forest. A good deal of timber is floated through, but practically all of it comes from forests in Meiktila and Yamethin. Cutch is found chiefly near Sunye, Shangan, Zeywa, and Pyaukseikpin. The forest receipts in 1903–4 amounted to Rs. 3,200.

Minerals. Sandstone for the use of the Irrigation department and the railway is quarried in the hills close to Kyaukse and Bilin, the output in 1900 amounting to about 13,000 tons, valued at Rs. 48,000. Limestone is extracted from the hills east of the railway, and burnt in kilns near the villages in the neighbourhood. The lime is largely for export, but it is also used locally for the construction of masonry irrigation works and for white-washing pagodas, &c. A royalty of Rs. 10 per kiln is levied by Government. Brick and pottery clays are found in the

District, also chalk in small quantities; and soap-sand, mica, and marble exist in the hills to the east of the railway, but have not yet been worked.

Arts and manufactures.

The majority of the population being dependent on agriculture and petty trading, there are no manufactures of any importance. Cotton garments for daily wear are woven on hand-looms everywhere, and in a few villages silk *pasos* and *longyis* are made for sale, but even in these villages the people depend mainly on agriculture for their livelihood. Two small rice-mills have lately been built at Myittha, but they receive little patronage and employ very few workmen.

Commerce and trade.

A considerable trade passes between the District and the Southern Shan States, the greater part of which follows the Myittha route via the Natteik pass, or an easier and longer track by way of Dahatbin. The merchandise is carried on pack-bullocks or ponies, which are owned and driven by Shans. This trade, with that going to Kume from the Natteik pass, is registered at Langwa, 4 miles from Myittha. In 1903–4 the imports by the Langwa route were valued at 9·4 lakhs. Of this total, no less than 5 lakhs represented the value of silver treasure required to make up the balance of trade, which is very much against the Shan States. Unmanufactured articles are the chief imports, the most notable being cigar wrappers (*thanatpet*), and fruit and vegetables (valued at Rs. 50,000 in 1903–4). Other commodities brought in are apparel, Shan slippers, wood-oil (*thitsī*), paper, and ground-nuts. The exports to the Shan States were valued in the same year at 6½ lakhs, the chief articles being manufactured silk piece-goods (1½ lakhs), European cotton piece-goods (1·3 lakhs), salted fish, salt, European cotton twist and yarn, raw silk, woollen piece-goods, and betel-nuts.

Another and more northerly trade route to the Shan States is via Taungdaw eastwards to Myogyi in the Maw State. The trade by this route, which is registered at Taungdaw, is not very considerable, but shows signs of expansion. In 1900–1 the imports were valued at Rs. 34,000, and the exports at Rs. 33,000, while in 1903–4 the corresponding figures were 2·2 lakhs and 2·1 lakhs. The chief imports are fruit and vegetables and lac, and the chief exports rice, paddy, and piece-goods. Merchandise by this route is usually carried in carts, though pack-bullocks are sometimes employed. The imported goods are taken to the railway station at Minzu, and thence by rail to Rangoon or Mandalay.

Besides the trans-frontier commerce with the Shan States,

there is a considerable trade with the neighbouring Districts and within the District itself. Large quantities of paddy are exported by rail from the Kyaukse, Myittha, and Kume Road stations, and smaller quantities also from Minzu. Chillies are sent from all the stations in the District, plantains from Minzu, lime from Minzu, Kyaukse, and Bilin, and pulse from Myittha; but three-fourths of the bulky exports reach the railway at Kume Road. The internal trade is of a petty nature, carried on for the most part by itinerant bazar sellers. Bazars have been built in most of the more important villages for their benefit.

Means of communication.

The railway from Rangoon to Mandalay passes north and south through the centre of the District, with eight stations in its limits, all of them connected by feeder roads with the surrounding country. The principal highways are the road from Kyaukse southwards to Kume Road station and thence into Meiktila District; that from Myittha to Ingon, used by trading caravans to and from the Shan States via the Natteik pass; and that from Minzu to Taungdaw, employed by the Shan caravans that follow the Taungdaw route. Roads from Minzu to Dayegaung connect the villages to the west of Minzu with the railway, while others pass from Kyaukse to Dwehla, and on into Sagaing District, and from Singaing eastwards to Mogaung and westwards to Sawye. All these, with a few other tracks of less importance, are maintained from Provincial funds, their total length being 97 miles. The District fund maintains 79 miles of road, the most important tracks being from Kyaukse to Bilin, from Myittha to Dayegaung, and from Kasun to Hmaingmaw. The District contains no metalled roads, except in the towns of Kyaukse and Myittha. During the dry season carts can make their way over the greater part of the plain, but while the rains last many of the tracks are impassable. A good deal of boat traffic is carried on the Myitnge and Panlaung rivers, as well as on a few of the irrigation canals. Ferries are provided wherever required for the public convenience, and the canals are all bridged at suitable intervals.

District subdivisions and staff.

The District is divided into two subdivisions: Kyaukse, comprising the KYAUKSE and SINGAING townships; and the subdivision and township of MYITTHA. These are under the usual executive officers. The Yeyaman tract is in charge of a *myothugyi*, who is subordinate to the subdivisional officer, Kyaukse. Under these officials are 326 village headmen, the Yeyaman *myothugyi* having ten villages under him. At headquarters are an *akunwun*, a treasury officer, and a superintendent

of land records, with a staff of 6 inspectors and 45 surveyors. For ordinary public works purposes the District forms a subdivision of the Meiktila Public Works division, conterminous with the civil Division. As stated above, the canals are under an Executive Engineer at Kyaukse. The forests form part of the Mandalay Forest division.

Civil justice and crime.

The jurisdiction of the civil and criminal courts is identical with the administrative divisions already described, and the Deputy-Commissioner and the subdivisional and township officers have the usual civil and criminal powers. There are two other judicial officers: namely, the head-quarters magistrate, who is also an additional judge of the Kyaukse township court; and the *myothugyi* in charge of the Yeyaman tract, who has third-class magisterial powers. Crime in the District is light, and the civil work is not heavy, though it is steadily increasing.

Revenue administration.

Under Burmese rule the land revenue was always paid in paddy, which the cultivators had to cart themselves to certain specified landing-places, where it was loaded in boats for conveyance to Mandalay. The contributions levied were very heavy, and were rendered still heavier by the dishonesty and malpractices of the receiving officers. To arrive at the demand a rough survey was made by running a rope round each holding, the area being calculated by squaring half the circumference thus obtained. No effective check was made of the surveyors' work, and they were at liberty to estimate the area as they pleased. From the estimated area the demand was from 6 to 20 baskets of paddy per *pe* (1·75 acres) on irrigated crops, 3 to 6 baskets per *pe* on 'dry' *ya* (upland) crops, 10 baskets from the second year's plantain crop, 40 baskets from the third year's, and 30 baskets from sugar-cane. There were fourteen revenue circles, each under a *segyi*, who collected the paddy revenue in his own canal tract with the assistance of village headmen and *myothugyis*. The revenue so collected amounted in average years to 758,000 baskets. In 1246 B.E. (A.D. 1884) king Thībaw farmed out the District for a certain stipulated sum to an official, who in turn sublet tracts to various contractors. Matters were found at this stage at the time of annexation. In 1888 temporary rates of assessment were sanctioned, as the District was almost depopulated, and had hardly begun to recover from the disturbances following annexation. They were considerably lower than those imposed by the Burmese, and the consequence was that a sudden and pronounced increase took place in the area brought under cultivation. The

next year a cadastral survey and settlement were taken in hand, and rates were sanctioned in 1893. All rice lands were divided into five classes, based on the relative facilities of irrigation, and the land rates were fixed at Rs. 6, 5, 4, 3, and 2 per acre. For other crops the following special rates per acre were fixed: betel-vines, Rs. 20; sugar-cane and areca palms, Rs. 12; plantains (full grown) and Goa beans, Rs. 8; orchards, tobacco, onions, chillies, turmeric, yams, tomatoes, gram, and wheat, Rs. 3; and sesamum, plantains (young), and all other crops, Rs. 1-8-0 per acre. This settlement was sanctioned provisionally for five years, subject to such revision as might be found necessary from time to time, and its rates are still in force. Supplementary survey followed immediately on settlement, and in time accurate agricultural statistics became available. A revision survey and settlement was commenced in 1902, and has recently been completed. Revenue is assessed only on crops which have matured; and where two crops of rice are taken off any field in one year, the revenue on that field for the second crop is assessed at one-half the full rate. On unirrigated non-state lands the rates of assessment are three-fourths, and on irrigated non-state lands seven-eighths, of the state land rates given above. The rates for irrigated lands include water rate.

The following table illustrates the growth of the revenue of the District since 1890-1. The figures are given in thousands of rupees:—

	1890-1.	1900-1.	1903-4.
Land revenue . .	3,72	6,49	6,95
Total revenue . .	6,45	8,26	9,00

After land revenue, *thathameda* is the most important item of receipt. It brought in rather more than a lakh and a half in 1903-4.

Local and municipal government.

The income of the District fund, utilized for the provision of various local needs, amounted in 1903-4 to Rs. 48,300, of which more than Rs. 40,000 was spent on public works. The only municipality in the District is KYAUKSE.

Police and jails.

The District Superintendent of police has a force of 3 inspectors, one chief head constable, 7 head constables, 16 sergeants, and 247 constables, who are distributed in 9 police stations and 2 outposts. The place of the rural police is taken by the village headmen, who have certain powers under the Village Regulation and Excise and Opium Acts, and who may be said as a rule to afford the police loyal support in the

detection and suppression of crime and the maintenance of order. There are two detachments of the Mandalay military police battalion in the District, one of 50 men under a *sūbahdār* at Kyaukse and the other of 30 men under a *jemadār* at Myittha, who are employed on general escort and guard duty. Kyaukse has no jail, and short-term prisoners are kept in the lock-up, while others are sent to the Mandalay jail to serve out their sentences.

When the absence of backward hill tribes and the comparatively small number of Indian immigrants are borne in mind, the proportion of literate persons in 1901 (35 per cent. in the case of males, 2·3 per cent. in that of females, and 18 per cent. for both sexes together) appears low, though missionary enterprise has done a good deal towards furthering education. In 1904 the District contained 5 secondary, 97 primary, and 504 elementary (private) schools. These institutions had in the same year an attendance of 6,212 pupils (including 927 girls), as compared with 3,062 in 1890–1 and 3,981 in 1900–1. The expenditure on education was Rs. 7,900, Provincial funds providing Rs. 5,700, and fees and subscriptions Rs. 2,200. Education.

There are 2 hospitals, with accommodation for 56 in-patients, in which 14,431 cases, including 579 in-patients, were treated in 1903, and 260 operations were performed. The income of these hospitals amounted to Rs. 8,900, towards which municipal funds contributed Rs. 4,200, Provincial funds Rs. 3,800, and subscriptions Rs. 600. Hospitals and dispensaries.

In 1903–4 the number of persons successfully vaccinated was 4,332, representing 31 per 1,000 of population. Vaccination is compulsory only within the limits of the Kyaukse municipality. Vaccination.

[S. Westlake, *Settlement Report* (1892).]

Kyaukse Subdivision.—Subdivision of Kyaukse District, Upper Burma, comprising the SINGAING and KYAUKSE townships.

Singaing.—Northern township of Kyaukse District, Upper Burma, lying between 21° 39′ and 22° 1′ N. and 96° and 96° 54′ E., with an area of 825 square miles. The population was 37,244 in 1891, and 40,123 in 1901, distributed in 169 villages, Singaing (population, 4,057), on the railway 10 miles north of Kyaukse town, being the head-quarters. An important village is Paleik (population, 3,070), near where the railway crosses the Myitnge river. The township proper is extremely well irrigated by canals. Its boundaries now include the mountainous Yeyaman tract to the east, with an area of

700 square miles and a population of only 1,648. This stretch of upland is inhabited by Danus, who are engaged in *taungya* (shifting) cultivation. In 1903–4 the township as a whole contained 67 square miles under cultivation, of which 47 square miles were irrigated, and the land revenue and *thathameda* amounted to Rs. 2,04,000.

Kyaukse Township. — Central township of Kyaukse District, Upper Burma, lying between 21° 25′ and 21° 41′ N. and 96° 2′ and 96° 21′ E., with an area of 172 square miles. The population was 45,733 in 1891, and 44,378 in 1901, so that it is one of the most thickly populated townships in the Province. It contains one town, KYAUKSE (population, 5,420), the head-quarters of the township and District, and 231 villages. The township is an extensive plain, walled in by the Shan plateau on the east, and is well irrigated by canals taking off from the Zawgyi river. In 1903–4 the area cultivated was 105 square miles, of which 82 square miles were irrigated, and the land revenue and *thathameda* amounted to Rs. 3,34,000.

Myittha.—Southern subdivision and township of Kyaukse District, Upper Burma, lying between 21° 12′ and 21° 33′ N. and 95° 57′ and 96° 25′ E., with an area of 277 square miles. The population was 43,645 in 1891, and 56,752 in 1901, distributed in 310 villages. The head-quarters are at Myittha (population, 3,023), on the railway 12 miles south of Kyaukse town. The railway runs north and south through the centre of the township, the portion to the east, drained by the Panlaung river, being a flat plain bounded by the Shan plateau, with a scanty rainfall, but a good supply of irrigation canals; while the western portion, once the Dayegaung township, is watered by the Samon river and the Sama canal. In 1903–4 the township contained 104 square miles under cultivation, of which 75 square miles were irrigated, and the land revenue and *thathameda* amounted to Rs. 3,24,000.

Kyaukse Town.—Head-quarters of Kyaukse District, Upper Burma, situated in 21° 37′ N. and 96° 9′ E., on the right bank of the Zawgyi river, near the centre of the District, 27 miles by rail from Mandalay and 359 from Rangoon. Population (1901), 5,420. It takes its name from the stone weir which here bestrides the Zawgyi at a point close to where its channel is crossed by the railway line. It lies at the foot of the Shwethayaung hill, an isolated limestone mass, rising from the plain to a height of 975 feet, and is well laid out, the civil station lying to the west, and the business quarter to the east of the railway line. The hill is crowned with

a shrine which dates from the reign of king Anawrata, and at its foot is the Shwemoktho pagoda, said to have been built by Asoka and repaired by Anawrata. The town has no industries of importance, and the inhabitants are to a large extent petty traders. The town was constituted a municipality in 1888. The income and expenditure during the decade ending 1901 averaged about Rs. 19,000. In 1903–4 the receipts amounted to Rs. 21,000, the main sources being bazar rents (Rs. 11,000) and house and land tax (Rs. 4,500). The expenditure was Rs. 22,000, the chief items being conservancy (Rs. 6,000), and hospital, which contains 40 beds (Rs. 4,600).

Boundaries, configuration, and hill and river systems.

Meiktila District.—District in the Meiktila Division of Upper Burma, lying between 20° 40′ and 21° 25′ N. and 95° 28′ and 96° 35′ E., with an area of 2,183 square miles. It is the most easterly of the Districts forming the dry zone of Burma, and is bounded on the north by the Districts of Kyaukse and Myingyan; on the south by Yamethin and Magwe; on the east by various small States of the Myelat division of the Southern Shan States; and on the west by Myingyan and Magwe. The District slopes generally from west to east until the Samon river is reached, after which it gradually rises again to meet the flanks of the outermost Shan hills. The central portion of the western boundary runs along the crest of a ridge of moderate altitude, with parallel ridges of lesser height on either side. Here the ground is rocky and boulder-strewn, and the vegetation scanty, consisting mainly of stunted trees and scrub. To the north and south of these ridges the country in the west, though still high, becomes flatter, and for a considerable distance east of the border the District is scored from north to south by deep watercourses with precipitous sides. The Mahlaing township, occupying the north-western quarter of the District, has an undulating surface, characterized by ridges running north and south. It has few level plains, and the valleys are often so narrow that the fields look like a winding river of grain. The south-western corner, comprising the Meiktila township, is also of a rolling character, though here the broken ground extends to a greater distance from the western boundary than farther north. Bounding the Mahlaing township on the east, and bisecting the District, is a ridge called the Minwin *kondan*, extending from the northern boundary of the District to a little south of Meiktila town. The town of Meiktila itself is built on this ridge, at an altitude of about 800 feet. Nearly parallel

to the *kondan* and about 12 miles distant from it on the east is another ridge, known as the Pwemingyi *kondan* in the north, and the Tetbyindaung in the south. Both ridges have a gravelly and practically uncultivable soil. The intervening valley, 12 to 15 miles in width, runs the whole length of the District, and is level and water-logged in parts. Low hills and stretches of rising ground, composed in part of nodular limestone, are met with here and there, chiefly on the west. Meiktila is almost the only District of Burma which possesses no navigable waterways. Its most important river is the Samon, which, rising in Yamethin, enters Meiktila in the south-east near the foot of the Shan hills, and flows due north into Kyaukse. It is not, however, navigable within the limits of the District, being more or less dry, except during the rains. Between it and the Pwemingyi ridge is a valley, 6 or 7 miles in width, which gradually rises towards the south, and is irrigated by numerous tanks. The Thinbon *chaung* rises on the eastern slopes of Popa, flows in a north-easterly direction through the Mahlaing and Wundwin townships, and falls eventually into the Samon at the extreme northern end of the District. Within the limits of Meiktila the Panlaung is merely a mountain brook.

One of the main features is the Meiktila Lake, situated on the Minwin ridge, about 800 feet above sea-level. This artificial stretch of water is about 7 miles long and $3\frac{1}{2}$ square miles in extent, and at the centre, near Meiktila, is so narrow as to be practically divided into two sections, north and south. The northern lake is diminishing in capacity yearly owing to the deposit of silt from its feeder streams, the Shanmange and the Mondaing, and both sections are subject to very rapid rises after heavy rain over their area of supply. Another important piece of water is the Nyaungyan-Minhla tank or lake, situated near the southern border of the District. It derives its water from the Chaunggauk and Chaungmagyi streams, both of which rise in the west, the former bounding the District on the south, the latter watering a considerable area of Yamethin District. The Nyaungyan and Minhla tanks were originally separated, but have now been joined by a canal.

Geology. The whole of the District is occupied by rocks of Upper Tertiary (pliocene) age, covered to a great extent by alluvium. In the western portion of the Mahlaing township the abrupt dip of the strata, visible to the naked eye by reason of the erosive action of the streams, appears to indicate that the tract has been the scene of violent volcanic upheavals, the

slopes in some cases being not less than 70° to 80° from the horizontal. In the western areas the trunks of large petrified trees are found in the alluvium, and in some cases large areas are strewn with fragments of fossilized wood.

The vegetation of the District resembles that of Kyaukse. **Botany.** In the plains it is of a very dry type, and sparse scrub jungle with cactus, tamarind, cutch, and several species of capers covers the greater part of the non-cultivated area. On the hills in the east the growth is more luxuriant, and the bamboo is found. Its main features are described under the head of Forests, below.

Tigers, bears, bison, elephants, and *sāmbar* are all found, **Fauna.** but only to the east of the Samon near the hills. Leopards are said to be increasing in numbers. Other kinds of deer besides the *sāmbar* are shot in the plains, and in the cold season ducks and snipe are plentiful. As in most of the dry zone Districts, snakes (including the cobra, the *karait*, and the Russell's viper) are very common.

Meiktila lies along the eastern edge of the dry zone of **Climate and temperature.** Upper Burma. The climate is dry but very healthy, except in the *tarai* east of the Samon river, where malarial fever is always prevalent. The cold season begins in November and ends in February, while the hot season lasts from February to June and the rains from June to October. The most unhealthy period is at the close of the rains. The great heat during the hot months is tempered by high winds, which blow continually from the south and south-west from March to May, and during a large portion of the rainy season as well, and the daily range of temperature is considerable. The minimum temperature in 1902 was 62° in January, while the maximum was 101° in May, and the mean for the year was 73° minimum and 89° maximum.

The rainfall is extremely capricious and always scanty. **Rainfall.** Only in three years since annexation (1886) can it be said to have been timely and abundant. Generally speaking, the annual amount received varies from 25 to 30 inches over the whole District. In 1891–2, however, only 12½ inches fell in Meiktila during the whole year, while in 1896–7, though the total was 28 inches, more than half fell in June and July. The rainfall is not only capricious in time but in the choice of localities, some tracts being left quite unwatered in some years, while others receive more than their due share.

It is said that in 1872 there was a flood caused by the overflowing of the Samon river, which inundated a large

portion of the country and destroyed all the crops. It is seldom, however, that the District suffers from an excess of water.

History and archaeology.

A tradition of doubtful authenticity says that the name *Matila* (meaning 'it does not reach') was given by Anawrata, king of Pagan, to the present town of Meiktila to commemorate the death from exhaustion of a horseman sent to report whether the lake extended to Popa, who returned with a negative answer on his lips. From the earliest times the District formed an integral part of the kingdom of Upper Burma, whether centred at Pagan, Ava, Amarapura, or Mandalay. The first place of note in the District mentioned in the Burmese chronicles is Pindale, now a village in the Wundwin township, which is said to have been founded by Sulathanbawa, a king of the Tharekhettra dynasty (see PROME DISTRICT). Later, in the eleventh century, Anawrata is reported to have visited Meiktila, and to have made the north embankment of the lake. The same monarch is credited with the foundation of Hlaingdet (1030). On the break up of the Pagan kingdom the country came under Shan dominion, and formed a portion of the principalities that strove for mastery in Upper Burma till the rise of the Toungoo dynasty. In due course it was absorbed into the Burmese empire of Pegu and later into the kingdom of Ava, of which it formed a part at the time of the annexation of Upper Burma. The country was disturbed during the cold season of 1885-6, but was occupied by troops from Pagan in March, 1886, when a force marched from Pagan through Mahlaing and Meiktila to Yamethin, a civil officer being left at Mahlaing and a military post being established at Meiktila, which was for the time made over to Yamethin District. At that time the Mahlaing township formed part of Myingyan, but the present District was constituted in October of the same year. The garrison of Meiktila was engaged during 1886 with the Yamethin dacoits on the one side and the Kyaukse dacoits on the other, while in the District itself were rebel leaders who had served the Myinzaing prince (see KYAUKSE DISTRICT). These were driven out again and again from their head-quarters at the foot of the Shan hills, whence they were in the habit of retiring to the Yengan and Lawksawk States on being pressed. A former Burmese cavalry officer, one Tun E, rendered valuable service at this time with a strong force of horse and foot, which he raised and maintained at his own expense. As time went on the outposts were gradually advanced, and

the bands were dispersed, with a loss, however, of about 11 officers and 80 men during the year. In 1887 the dacoits at the foot of the Shan hills were attacked by a combined expedition from Kyaukse and Meiktila, and were driven with some loss from a strong position; and after that the District remained undisturbed, with the exception of the south-east portion, bordering on Myingyan District, which was raided from time to time by the cattle-lifters of Popa and the neighbouring country. By 1888 the District was practically settled.

There are a number of notable pagodas in the Mahlaing, Wundwin, and Thazi townships, the fame of some of which extends far beyond the District limits. The chief of these is the Shwezigon at Pindale, to which pilgrimages are made from all parts of Upper Burma. Others are the Shwesiswe, the Sutaungbyi, the Shwemoktaw, and the Shweyinhmyaw. Legend credits king Narapadisithu of Pagan with having built the Sutaungbyi. The Meiktila township contains six remarkable shrines, the Shwesawlu, the Nagayon, the Shwelehla, the Sigongyi, the Nandawya, and the Shwemyindin. When Anawrata, king of Pagan, came to repair the banks of the lake, he is said to have founded the Shwelehla and Nagayon pagodas, while his son, Saw Lu, built the Nandawya pagoda to the north of the Meiktila fort. This last is called, indifferently, the Saw Lu or Nandawya pagoda, because in 1796 Bodawpayā, the consolidator of Alaungpayā's conquests, built a temporary palace (Burmese, *nandaw*) at the lake side just opposite the pagoda. At the same time his son founded the Sigongyi pagoda, north of the lake.

The people.

The population of Meiktila District was 217,280 in 1891 and 252,305 in 1901. Its distribution in the latter year is shown in the following table:—

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Meiktila	466	1	390	76,656	164	+17	14,703
Mahlaing	426	...	250	62,890	148	+13	11,925
Thazi	696	...	316	49,824	72	+27	8,035
Wundwin	595	...	277	62,935	106	+11	7,004
District total	2,183	1	1,233	252,305	116	+16	41,667

The only District from which there has been any con-

siderable immigration is Myingyan. The greater part of the emigration is directed to Kyaukse and Yamethin Districts and to Lower Burma. In the hills in the east the villages are few and far between, but elsewhere the population is thick enough to raise the density in the District as a whole to over 100 persons per square mile. There are a certain number of representatives of the religions of India, but 98 per cent. of the community are Buddhist, and about the same proportion are Burmese speakers. Shan is spoken far less than in the adjoining District of Yamethin.

Race and occupation.

The number of Burmans in 1901 was 245,900, or slightly over 97 per cent. of the total population. In the hills in the east of the District are about 1,300 Danus, who are regarded as Shans by the Burmans and as Burmans by the Shans; they are of mixed Shan and Burmese blood, and talk bad Burmese. At Ywagyi a village is inhabited by *payākyuns* or pagoda slaves, alleged to be the descendants of 400 men assigned to the pagoda by king Anawrata. The Indian immigrants in 1901 numbered 2,700, out of a total of 2,600 Musalmāns and 1,600 Hindus, so that about 1,500 of the representatives of these Indian religions must have been born in the country. In the Thazi township is a colony of Burmese-speaking Muhammadans, who account for a large proportion of this last total. They are the reputed descendants of a regiment in the army of king Mindon, who were said to be the offspring of a force of 3,000 men sent to Burma by the emperor of Delhi in the seventeenth or eighteenth century. About half the Indian population is domiciled in Meiktila town and cantonment. In 1901 the number of persons directly dependent upon agriculture was 178,370, representing 71 per cent. of the total population.

Christian missions.

There are about 500 Christians, largely British soldiers, the majority of whom are Anglicans or Roman Catholics. There is not much active mission work in the District. The total of native Christians is 234.

General agricultural conditions.

The agricultural conditions are typical of the dry zone, Meiktila being probably the poorest of all the Districts lying in that area. Rice is grown in suitable tracts; where it cannot be raised, the ordinary crops of the dry zone are cultivated. The soil in the valleys near the two ridges described above is covered with *kyatti*, a yellowish soil, greasy and slightly clayey when wet, hard when dry, and fit only for rice, of which it produces the poorest crops. The best rice tract is composed of black cotton soil (*sane net*), a stiff,

tenacious, and adhesive clay. An ample supply of water is, however, a more important factor in the production of rice in Meiktila than a good quality of soil; and the only good crops are obtained on the lands irrigated from the numerous tanks in the Meiktila and Nyaungvan-Minhla systems, and the weirs thrown across the Thinbon *chaung*. A considerable area of rice land, especially the valley between the two ridges mentioned above, is impregnated with natron or soda (*satpya*), an element which necessitates constant supplies of clean water to the crops. The beds of some of the streams unfortunately show abundant traces of the presence of natron, and the evil is spreading. Even when fresh water is constantly supplied, a *satpya*-impregnated field will not produce the full crop of an ordinary field; and if the water stands for long it turns the colour of congealed blood, and the rice stalks are apt to bend over and break and assume a bedraggled and rusty appearance. The methods of rice cultivation do not differ from those in use in Upper Burma generally. Practically all the *kaukkyi* (wet-season) rice is transplanted from nurseries. *Jowār* takes the place of *kaukkyi* on rice lands in years of scanty rainfall. Cotton is cultivated for the most part on the high ground in the north-west, and is only grown as a rule once on the same ground in three years, sesamum, *jowār*, or beans intervening. Early sesamum (*hnanyin*) is reaped between June and September; late sesamum and *jowār* between October and January. Other crops cultivated in the District are chillies, peas and beans, tomatoes, maize, onions, gram, sweet-potatoes, cucumbers, pumpkins, brinjāls, Goa beans, betel-vines, sugar-cane, and toddy-palms.

Chief agricultural statistics and principal crops.

The following table gives the main agricultural statistics of the District for 1903-4, in square miles:—

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Meiktila	466	180	32	405
Mahlaing	426	143	5	
Thazi	696	103	47	
Wundwin	595	117	52	
Total	2,183	543	136	405

The staple crop is rice (practically all *kaukkyi* or wet-season rice), grown on 202 square miles, a figure approached only by that for *jowār*, which covers 188 square miles. A large area (135 square miles) is under sesamum, a crop generally followed by a second harvest of rice, *jowār*, maize, or beans. Nearly

52 square miles produce early sesamum in the Meiktila township alone. In 1903–4 about 40 square miles were under cotton. Of this area, 31 square miles lay in the Mahlaing township, adjoining the main cotton-producing area in Myingyan District. Meiktila grows the largest chilli crop in the Province, 17 square miles being devoted to the cultivation of this condiment. The other crops referred to in the preceding paragraph are produced on a smaller scale. Toddy-palms are planted to a large extent in the north-western part of the District. The average area of a holding is about 7 acres in the case of rice land, and about 11 in the case of *ya* or uplands.

Improvements in agricultural practice.

No loans have been made under the Land Improvement Loans Act. Free recourse was had to the Agriculturists' Loans Act during the scarcity of 1896–7, and since then the utility of this enactment has been proved more than once. About Rs. 9,000 was advanced in 1900–1, and the system was so much appreciated by the villagers that during the following three years the loans averaged nearly Rs. 30,000 per annum.

Cattle, &c.

Cattle-breeding is carried on to a considerable extent. Buffaloes have been introduced from Lower Burma in small numbers, but are not bred in the District.

There are no reserved grazing-grounds, sufficient pasturage being afforded by fallow and uncultivable lands, broken and hilly ground, and scrub jungle. No difficulties are experienced in feeding live-stock, except during a period of drought, when cultivators usually emigrate to areas where there is no distress. The only expenditure incurred by the owners of breeding cattle is the hire of the herdsman who takes the beasts out to graze. Goats and sheep are reared with success by natives of India in Meiktila town and in a few villages. Hogs are also bred, but only in small numbers.

Irrigation.

The chief sources of irrigation are the Meiktila Lake, the Nyaungyan-Minhla tank, the Inyin *se* (or dam), the Wundwin *se*, and the Nyaungbinhla *se*. The Meiktila Lake draws its supplies from the high land east of Popa, having a catchment area of over 200 square miles. The area irrigated from the system of tanks and distributaries fed by it extends north-eastwards to Wundwin, and eastwards to Thazi, and the total at present commanded by the lake is 43 square miles. The portion of this total actually irrigated varies considerably from year to year. The Nyaungyan-Minhla tank, described above, is really composed of two tanks joined by a channel. New irrigation works have considerably diminished its catchment

area, which is now estimated at 200 square miles, the area commanded being 30 square miles, though only 6,000 acres are at present actually irrigated. The Inyin *se* is a stone crib-work weir (with flanking banks), thrown across the Thinbon *chaung* near Chaunggon, a village to the north of Meiktila town. It is capable of watering nearly 10,000 acres, but usually irrigates about half that amount. The water passing over the weir is dammed below by numerous temporary *ses*, which distribute the water over a considerable area. The dam was seriously breached in September, 1905. The Wundwin *se* is situated close to Wundwin, its supply being derived chiefly from the Meiktila Lake system and a watercourse known as the Natmyaung. It irrigates as a rule about 4,500 acres. The Nyaungbinhla *se* consists of a crib-work weir thrown across the Samon river just below where it enters the District in the south. It diverts the water to the north-east, and serves on an average about 3,000 acres. The District contains hundreds of small tanks, fed by weirs which hold up the freshes in the streams; they are, however, maintained by the cultivators themselves, and are not Government works. Altogether 136 square miles were returned as irrigated in 1903-4. Of this total 50,500 acres were served by the numerous private tanks scattered over the country, and 35,600 acres by Government tanks and canals. The irrigated land is almost wholly given up to rice cultivation.

Forests.

Several types of forest occur in the District. The western areas are covered with dry scrub growth, in which the principal species are *sha* (*Acacia Catechu*), *kan* (*Carissa Carandas*), *pyinzin* (*Rhus paniculata*), *dahat* (*Tectona Hamiltoniana*), and here and there a *tanaung* (*Acacia leucophloea*), or a group of tamarinds. The only species of any importance is the *sha*, yielding the cutch of commerce, but this has been overworked in the past. Along the banks of the Samon *chaung* the growth improves, and in places which have escaped the attention of contractors supplying fuel to the railway it approaches the condition of high forest. The chief species in this belt are *than* (*Terminalia Oliveri*), *dahat* (*Tectona Hamiltoniana*), *thamon* (*Niebuhria sp.*), *nabe* (*Odina Wodier*), and *tapauk* (*Dalbergia paniculata*), with the *myinwa* (*Dendrocalamus strictus*) as the common bamboo. None of these is of any commercial importance, though the extract prepared from the bark of the *than* has been reported on very favourably as a tanning material. On the slopes of the hills draining into the Samon *chaung* the forest is of the familiar *indaing* type, the principal

species being *in* (*Dipterocarpus tuberculatus*), *thitya* (*Shorea obtusa*), and *ingyin* (*Pentacme siamensis*), all yielding building timber. Still farther to the west, in the basin of the Panlaung *chaung*, mixed dry forests predominate, containing valuable timber trees, such as teak, *padauk*, and *pyingado* (*Xylia dolabriformis*), as well as the *thitya*, *ingyin*, and other growths. In 1903-4 the total area of 'reserved' forests was 105 square miles, of which 49 square miles were cutch Reserves; and it was estimated that the unclassed forests covered a further 300 square miles. With the exception of about 30 acres of paddy-fields acquired at settlement in the Aingtha and Thinbon *chaung* Reserves, which were ploughed and sown broadcast with cutch seed, no planting operations have been undertaken. The total forest receipts in 1903-4 amounted to only Rs. 2,500.

Minerals. Meiktila possesses few minerals of economic importance. Limestone appears in small quantities in many parts of Mahlaing, but is said to have no industrial value, though a very fair lime can be obtained from it. The natron that accumulates on the soil in the *satpya*-laden tracts is collected and used as a cosmetic. Coal has been found in the Kyetkauk Hill south-east of Hlaingdet in Thazi, and also in the Suban circle; and brine-springs occur in a few places in the Wundwin township.

Arts and manufactures. The District is essentially agricultural, and the great majority of the population depend wholly on husbandry for a livelihood, so that there are few manufactures. Bamboo basket and mat-work is carried on to a limited extent, but the output is not more than sufficient for local requirements. The only special industry is the manufacture of rough pottery, carried on in the Wundwin, Mahlaing, and Thazi townships. The experiment of weaving cotton cloth by machinery is being tried in the villages of Shawbin and Aingtha in Wundwin. A cotton-ginning factory has been established at Mahlaing, and the cotton, after being ginned, is exported to Lower Burma and Bhamo. Butter is manufactured at Meiktila, and goes to Rangoon and Mandalay.

Commerce and trade. The District carries on a steady trade with the Southern Shan States by way of the Thazi-Taunggyi Government road. A good deal of the traffic that starts from Taunggyi is diverted into Yamethin; a fair portion of it, however, reaches Meiktila District and is registered at Kywelebin. The imports from the Shan States by the Kywelebin route were valued at 4 lakhs in 1903-4, the chief items being potatoes (valued at Rs. 74,600),

lac (Rs. 1,08,000), ponies, vegetables, and various other articles, the most important of which is *thanatpet* for cigar wrappers. The exports to the Shan States by the same route were valued in the same year at 13·4 lakhs, including European cotton piece-goods (6·8 lakhs), betel-nuts (Rs. 36,800), cotton twist and yarn (Rs. 96,000), salt (Rs. 26,200), petroleum (Rs. 30,400), woollen goods, wheat, iron-work, salted fish, *ngapi*, *ghī*, and sugar. To other Districts in Burma, Meiktila exports cutch and cotton, mainly to Rangoon and Mandalay by train, and to Bhamo via Mandalay by steamer. Cotton and silk goods and various manufactured commodities are brought in by the railway.

Means of communication. Though absolutely without navigable waterways, Meiktila is exceptionally well off in the matter of land communications. The railway line from Mandalay to Rangoon passes from north to south through the District for 39½ miles, and has four stations within its limits. The Myingyan branch from Thazi to the boundary at Ywatha runs diagonally north-westwards for 40½ miles, with six stations, including those at Meiktila and Mahlaing. Thus, except in the extreme east, no portion of Meiktila is out of touch with the District head-quarters or the outside world.

The chief roads maintained by the Public Works department are: from Meiktila to Thazi (15½ miles, metalled), and thence via Hlaingdet into the Shan States, crossing the Shan States border near Nampandet; from Wundwin to Mahlaing (29 miles); from Meiktila to Pindale (20 miles); from Meiktila to Mahlaing (31 miles); and on to Myingyan. All but the first of these are unmetalled. Various tracks, some of them maintained out of the District fund, connect the larger villages with each other and the railway. The total length of metalled and unmetalled roads in 1903–4 was 24 miles and 107 miles respectively. The rainfall is so light that the village roads can be used practically at all seasons of the year.

Famine. The capriciousness of the rainfall is responsible for frequent failure of crops. Scarcity occurred in 1891–2 owing to light rains, and caused considerable emigration to Lower Burma and Kyaukse, necessitating the opening of relief works. In severity, however, it was eclipsed by the famine of 1896–7. The previous year had been a lean one, and the rains held off from the middle of July till October, and ceased the same month. The needs of the people were, however, supplied by private enterprise; and though the price of rice at first rose to 7 seers to the rupee, it fell to 8 seers when food-grains were imported. The stringency of prices was not accompanied by

any marked increase of crime except cattle-theft. During the period of famine cholera broke out in some parts of the District, but was soon stamped out. The death-rate, however, ordinarily between 25 and 30 per mille, rose in 1897 to 42 in March, April, and May, dropping gradually to normal in the autumn. The works undertaken for the relief of distress were the Thazi-Myingyan railway, and the Wundwin-Pindale and Meiktila Lake roads. In addition to other measures advances were made in 1896–7 under the Agriculturists' Loans Act to the amount of Rs. 41,000, and in the following year to the amount of Rs. 53,000. The whole District was affected, and many of the villagers migrated to other parts of Burma. When the assessment of *thathameda* was made, it was found necessary to abstain from levying anything from 3,863 households, while the rest of the people were taxed at reduced rates of Rs. 3 and upwards. The total number of units relieved from October, 1896, to November, 1897, was $3\frac{3}{4}$ millions, the largest number in a month being 600,000 in January.

District subdivisions and staff.

The District is divided for administrative purposes into two subdivisions: Meiktila, comprising the MEIKTILA and MAHLAING townships; and Thazi, comprising the THAZI and WUNDWIN townships. They are in charge of the usual executive officers, under whom are 468 village headmen. At head-quarters are an *akunwun* (in subordinate charge of revenue), a treasury officer, and a superintendent of land records, with a staff of 5 inspectors and 50 surveyors. The District forms, with the rest of the Division, the Meiktila Public Works division, and contains two subdivisions. An Assistant Engineer is in charge of the Southern or Meiktila subdivision of the eastern Irrigation division. The District forms part of the Kyaukse subdivision of the Mandalay Forest division.

Civil justice and crime.

The Commissioner is Sessions Judge for the District, and the Deputy-Commissioner is District Magistrate and District Judge. Four township courts and two subdivisional courts are subordinate to the District court. The township officers dispose of both civil and criminal work, as well as revenue business. It has been found necessary to appoint one additional judge (who is also treasury officer and head-quarters magistrate) to the Meiktila township court, and a second to assist the township officers of Thazi and Mahlaing in their civil work. A third additional judge spends half his time at Wundwin and half at Pyawbwe in Yamethin District. Besides the additional township judges, an additional judge (usually an Extra Assis-

tant Commissioner) has been posted to Meiktila and Yamethin Districts to relieve the District court of the greater part of its civil and criminal work. He sits half the month at Meiktila and half at Yamethin. A Cantonment Magistrate disposes of petty criminal cases within the limits of Meiktila cantonment. Cattle-theft is one of the most prevalent offences, the facilities for this form of crime being great.

Revenue administration.

Under native rule the District revenue was derived from *thathameda*, an irrigation tax, crown-land rents, bazars, and various law receipts. State land at that time covered a comparatively small area. The water revenue was collected by *myaunggaungs* or canal-keepers, who superintended the distribution of the water under the *kan-ok* or Superintendent of the Meiktila Lake. The *myaunggaungs* received neither pay nor commission, but doubtless took advantage of their position to levy extensive blackmail. At annexation the revenue on most of the state land was fixed at Rs. 16 per *pe* (1·75 acres), which was supposed to represent the value of one-quarter of the actual produce, but it was not long before this rate was reduced by about half. The irrigation tax was continued at a maximum rate of Rs. 2 per acre, and the *thathameda* was collected at Rs. 10 a house, or the same rate as before. Survey operations went on from 1891 to 1895; and the settlement of the surveyed area, which included all the District west of the Samon, was begun in 1896 and completed in 1898. In 1901-2 the rest of the District up to the foot of the Shan hills was surveyed, and settlement rates will shortly be introduced there also. At the settlement of 1896-8 the District was divided into two tracts: one comprised the greater part of the District from the Samon westwards, the other consisted of a strip of relatively poor upland bordering on Myingyan District in the west, containing very little state land, and only about 4,500 acres of cultivation. On the completion of the settlement, the *thathameda* was reduced from Rs. 10 a household to Rs. 3, and fixed rates were introduced on state land, the rates on non-state land being levied at three-fourths of the rate on corresponding state land. In the first tract rice land now pays from R. 1 to Rs. 5 per acre; other crops on rice land, R. 1; *ya* or upland crops, from 8 annas to Rs. 1-8-0 per acre; onions and chillies, Rs. 3; garden crops, from Rs. 2-8-0 (on plantain groves) to Rs. 15 (on betel-vines); sugar-cane, Rs. 10 per acre; and solitary fruit trees, 4 annas each. In the second and poorer tract, the rates on rice land vary from 7 annas to Rs. 3-8-0; and on *ya* lands from 4 annas to Rs. 1-2-0 per acre.

The following table gives the revenue, in thousands of rupees, for a series of years:—

	1890–1.	1900–1.	1903–4.
Land revenue . .	10	5,20	3,59
Total revenue . .	4,00	7,83	6,35

At one time *thathameda* was the main source of revenue, but on the introduction of settlement rates the receipts from this source fell below those from land revenue.

Local funds. The income of the District fund in 1903–4 was Rs. 59,000, and the chief item of expenditure was public works, to which Rs. 52,000 was devoted. There are no municipalities.

Police and jails. The District Superintendent of police has a force of 3 inspectors, 8 head constables, 23 sergeants, and 289 constables, 24 of whom are mounted. There are 90 military police stationed at Meiktila and 30 at Thazi. Meiktila contains a District jail, with accommodation for 198 prisoners. The industries carried on are wheat-grinding, oil-pressing, cactus and *surkhi* pounding, carpentry, rope-making, and bamboo and cane-work.

Education. The standard of literacy according to the figures of the last Census is somewhat low for Burma. The number of Indian immigrants and backward hill tribes is not large, yet the proportion of literate males in 1901 (33 per cent.) was below that of any other District in the dry zone of Upper Burma, and the female percentage (1·7) was higher only than that of Magwe and a few of the most backward areas of the Province. For both sexes together the proportion was 16 per cent. The number of pupils was 630 in 1891, and 6,903 in 1901. In 1904 the District contained 7 secondary, 82 primary, and 576 elementary (private) schools, with an attendance of 8,399 pupils, including 495 girls. The educational expenditure amounted to Rs. 21,700, Provincial funds supplying Rs. 16,900, fees Rs. 3,000, and subscriptions Rs. 1,800.

Hospitals. There are 2 hospitals, with a total of 33 beds; and 10,664 cases, of which 444 were those of in-patients, were treated in 1903. The number of operations in the same year was 242. The expenditure amounted to Rs. 11,500, mostly derived from Provincial funds. Subscriptions realized Rs. 600.

Vaccination. In 1903–4 the number of persons successfully vaccinated was 9,130, representing 36 per 1,000 of population.

[R. A. Gibson, *Settlement Report* (1900).]

Meiktila Subdivision.—Western subdivision of Meiktila

District, Upper Burma, comprising the MEIKTILA and MAHLAING townships.

Meiktila Township.—South-western township of Meiktila District, Upper Burma, lying on both sides of the Meiktila-Myingyan railway, between 20° 40′ and 21° 0′ N. and 95° 31′ and 96° 2′ E., with an area of 466 square miles. The population was 65,612 in 1891, and 76,656 in 1901, distributed in one town, MEIKTILA (population, 7,203), the head-quarters of the township and District, and 390 villages. The country is undulating and badly watered for the most part, except in the neighbourhood of the Meiktila Lake. In 1903–4 the area cultivated was 180 square miles, and the land revenue and *thathameda* amounted to Rs. 1,38,000.

Mahlaing.—North-western township of Meiktila District, Upper Burma, lying across the Meiktila-Myingyan railway, between 20° 54′ and 21° 19′ N. and 95° 28′ and 95° 52′ E., with an area of 426 square miles. The population was 55,868 in 1891, and 62,890 in 1901, distributed in 250 villages, Mahlaing (population, 2,251), a local trade centre, situated on the railway near the Myingyan border, being the head-quarters. The township, together with the adjoining Natogyi township of Myingyan District, constitutes the chief cotton-producing area in Burma, and consists of typical cotton country, dry and undulating. In 1903–4 the area cultivated was 143 square miles, including 31 square miles under cotton, and the land revenue and *thathameda* amounted to Rs. 1,23,000.

Thazi Subdivision. — Eastern subdivision of Meiktila District, Upper Burma, comprising the THAZI and WUNDWIN townships.

Thazi Township. — South-eastern township of Meiktila District, Upper Burma, lying across the Mandalay-Rangoon railway, between 20° 43′ and 21° 3′ N. and 95° 56′ and 96° 35′ E., with an area of 696 square miles. The western portion is flat and cultivated, and has a fairly dense population, but the eastern runs up to the hills bordering the Shan plateau and contains few inhabitants. The population was 39,256 in 1891, and 49,824 in 1901, distributed in 316 villages. The head-quarters are at Thazi (population, 1,803), the junction for the Meiktila-Myingyan branch railway, 306 miles from Rangoon, and 80 from Mandalay. In 1903–4 the area cultivated was 103 square miles, and the land revenue and *thathameda* amounted to Rs. 1,11,000.

Wundwin.—North-eastern township of Meiktila District, Upper Burma, lying on both sides of the Mandalay-Rangoon

railway, between 20° 59′ and 21° 25′ N. and 95° 47′ and 96° 18′ E., with an area of 595 square miles. The population was 56,544 in 1891, and 62,935 in 1901, distributed in 277 villages, Wundwin (population, 1,090), near Thedaw on the railway, being the head-quarters. The eastern part of the township is watered by the Samon river, which runs near the foothills of the Shan plateau in a valley of some width. The more undulating country in the west is traversed by the Thinbon, the waters of which are diverted on to the surrounding paddy-fields in the rains by means of dams. In 1903-4 the area cultivated was 117 square miles, and the land revenue and *thathameda* amounted to Rs. 1,41,000.

Meiktila Town.—Head-quarters of the Division and District of the same name in Upper Burma, situated in 20° 53′ N. and 95° 52′ E., on the Myingyan branch of the Burma Railway, 320 miles from Rangoon and 57 from Myingyan. It stands on the margin of a large artificial lake, with an irregular indented margin. The lake is practically divided into two bodies of water, the north and the south lake. Over the strip of water uniting the two run the railway bridge and a narrow wooden bridge which connects the town on the east with the civil station on the west. The population of Meiktila was 4,155 in 1891 and 7,203 in 1901, including over 2,000 persons of Indian origin. The town is built on irregular broken ground. On the highest point east of the southern lake shore lie the cantonments, from which a road runs along the embankment of the lake, passing through the town, near the railway station, and crossing the bridge to the civil lines, whence it is continued round the margin of the southern lake to the barracks again, thus forming a circular road of 7 miles in length. The town is not picturesque, and the number of flat-topped brick houses give it an eastern, but quite un-Burmese, appearance. Only the *pongyi kyaungs* and pagodas remain unchanged. There are trees in Meiktila itself; but the general impression on first arriving by train from Thazi is of bare, broken, stony ground, with scrubby jungle growing in patches, and the lake, with its diversified shores, comes as a pleasant surprise. The north lake has few buildings on its banks. West of it lies a small suburb called Kanna, and on its eastern shore are the military police lines, the American Baptist Mission, the bazar, and the Musalmān mosque. All these are divided by the railway line from the town proper.

There are no manufactures, but a fair trade in hides and

other commodities is done with the surrounding villages. Cattle-breeding is carried on to some extent. Butter manufactured here is exported to Rangoon and Mandalay. Nearly all the *pongyi kyaungs* contain saw-pits, and new houses are constantly being built. Leases have lately been issued in the town, and the consequent security of land tenure encourages the growth of good wooden and brick buildings. There is a large bazar, where a market is held every fifth day, resorted to by all the country-side.

Most of the public buildings have been constructed within the last ten years. The main Government vaccine dépôt for Burma is located at Meiktila. It was started in 1902, and new buildings are to be erected in connexion with it. The expenses of the dépôt in 1903–4 amounted to Rs. 8,500, provided out of Provincial funds. The circuit-house is unusually large, and the club, built in one of the best positions on the shore of the lake, is a convenient and capacious building. The station contains two churches, for the Roman Catholic and Anglican communities, a jail and a hospital. The usual strength of the garrison is one wing of British infantry and a regiment of native infantry. Meiktila is also the head-quarters of a company of the Upper Burma Volunteer Rifles. The income of the cantonment funds in 1903–4 was Rs. 5,700, and the expenditure Rs. 5,600.

The lake is reserved for drinking and household purposes, and is carefully protected from possible pollution. The reputation of Meiktila as a healthy station is supposed to be largely due to its good supply of drinking water. The depth of water in the lake varies very much, and the under-currents are strong. During the hot season it is occasionally swept by violent gusts of wind, which have occasioned several fatal boating accidents. The town has not yet been constituted a municipality; but a conservancy scheme for the urban area is now working well, and should increase the healthiness of this thriving and growing centre.

Yamethin District.—District in the Meiktila Division of Upper Burma, lying between 19° 27′ and 20° 47′ N. and 95° 34′ and 96° 39′ E., with an area of 4,258 square miles. Its boundaries are Meiktila District on the north; the Shan States on the east; Toungoo District on the south; and the Districts of Thayetmyo, Magwe, and Myingyan on the west. In shape it is an irregular rectangle, with the longer sides running north and south. On the eastern edge is the rampart of hills, 6,000 feet in height in parts, which separates the

Boundaries, configuration, and hill and river systems.

District from the Shan States. On the west is the high ground forming the northern portion of the Pegu Yoma, which changes within the limits of the District from a well-defined hill range in the south, where it divides Yamethin from Thayetmyo, into low ridges and undulating uplands in the north. From the Yoma three spurs run eastward into the intervening plains, the southernmost of which, known as the Kyawma, forms part of the watershed separating the waters of the Irrawaddy and Sittang. The central plain, lying between the two main hill systems, averages 20 miles in width, and rises from the northern border for about 20 miles as far as Yamethin, after which it drops gradually southwards for about 70 miles till the Toungoo border is reached. Yamethin town itself is on the highest point in the plain. The Kyeni tank close to the town drains, in fact, both northwards and southwards into the two main basins. The north-west corner of the District is shut off on the east by the Yoma, and drains into the Yin, which runs through Magwe District into the Irrawaddy. The uplands between the Pegu Yoma in the west and the central valley may be divided into two portions, north and south of the Kyawma. The northern is characterized by rocky, barren hills, rich, narrow valleys, and broad, undulating table-lands. It is watered by three streams rising in the Yoma: the Chaunggauk, bounding the District on the north; the Chaungmagyi, flowing east into the plain and then north into Meiktila District; and the Thitson, running in the same direction into the plains, where it supplies numerous irrigation channels. In the southern portion the country is very much broken but thickly forested, vast tracts of uncultivable land appearing in places. The rivers draining it are the Sinthe *chaung*, which rises in the Yoma in the latitude of Yamethin, and winds in a south-easterly direction to meet the Paunglaung stream near Pyinmanā; the Ngalaik *chaung*, an affluent of the Sinthe; and the Yonbin, which flows from the western hills into the Paunglaung near the village of Ela. The last-named stream rises in the uplands to the east of the District, emerges on the plain near Pyinmanā, and from thence flows southwards under its better known name, the Sittang, into Toungoo District. It is the only navigable waterway, as the other streams, though used for floating timber in the rains, are dry for a considerable portion of the year. The only lake is the Ingyaung, which lies near the south-western corner of the District. It has an area of six square miles, and drains into one of the tributaries of the Yonbin.

Nearly the whole area is covered with soft sandstones of the Upper Tertiary (pliocene) age. To the east are hills of crystalline rocks forming the western edge of the Shan plateau, but little is known of the geology of this part of the District. Geology.

In the north, where the country is very dry, the jungle vegetation is sparse and stunted, and includes growths such as the tamarind, the cactus, the *zi* (*Zizyphus Jujuba*), and the *tanaung* (*Acacia leucophloea*). In the Pyinmanā subdivision in the south it is richer and more varied, and valuable timber trees (detailed under the head of Forests, below) are plentiful. Botany.

Tigers (including a small variety locally known as the *kyamin*), leopards, *tsine* or *hsaing* (*Bos sondaicus*), bison, and bears are met with in the hilly jungle areas, and *sāmbar* and *thamin* (or brow-antlered deer) are plentiful in the plains. As elsewhere in the dry zone, hares, partridge, and quail are found in suitable localities. In the drier portion in the north of the District snakes are common. Fauna.

Yamethin is between 600 and 700 feet above the sea, and the climate in both the cold season and the rains is pleasant. In the months of April and May the heat is often intense, however, and September and October are very oppressive. In 1901 the minimum temperature recorded in January was 48°, and the maximum towards the end of April 112°. The northern half of the District lies in the dry, and the southern in the wet, zone of Burma, and the Sinthe stream may be taken as the line roughly dividing the two tracts. The annual rainfall thus decreases steadily towards the north, the average for five years ending 1902 being 56 inches at Pyinmanā in the south, and 33 inches at Yindaw in the north-west. The monsoon, however, is capricious, and the rain sometimes falls at such times as to destroy every kind of crop in the northern subdivision. For the main product, rice, the rain is insufficient in the Yamethin subdivision and the northern parts of the Pyinmanā subdivision, unless supplemented by irrigation. Taking a period of ten years, the rainfall in the former area was favourable in only two years, indifferent in four, bad in three, and a complete failure in 1896; in the latter it was good in six, indifferent in two, and bad in two years. Climate, temperature, and rainfall.

Very little is known of the history of Yamethin prior to the annexation of Upper Burma. The southern portion appears to have formed part of the kingdom of Toungoo, but did not pass with the rest of Toungoo to the British at the close of the second Burmese War. British troops first entered the History and archaeology.

District in 1885, when a column from the frontier post of Toungoo occupied Pyinmanā, then called Ningyan. Its entry was unopposed, but the surrounding country was very soon seething with rebellion. Pyinmanā District was constituted early in 1886; and before many months had elapsed it was overrun by bands of dacoits, the largest under two ex-officials, the *Le Wun* and the Theingon *thugyi* (headman), as well as three so-called princes. These gangs were constantly interrupting the British communications by river and by road, and even a part of Pyinmanā town itself was temporarily occupied by dacoits. At the end of the year large reinforcements were sent up, and several severe blows were inflicted on the insurgents; but the dense bamboo and high *kaing* grass jungles favoured the dacoits, who still acted on the offensive. Yamethin District was also formed in 1886, but later than Pyinmanā. It included a part of the present Meiktila District, until that was made into a separate charge. In Yamethin matters were quieter than farther south, and by 1887 this part of the country was more or less pacified. In Pyinmanā District great activity was displayed by the military police in that year, in clearing the forests of dacoit bands and disarming the inhabitants; but in the rainy season there was a recrudescence of dacoity, the seat of trouble being east of the Sittang, and two police posts were rushed by the rebels in 1888 and destroyed. At the end of 1888 four large gangs were at large, but the strict enforcement of the Village Regulation, and an expedition to clear the dacoits from their lairs in the petty Karen State of Bawgata, practically broke up the bands for good in 1889; and in 1890 the District was reduced to order by the systematic hunting down of dacoits in the Yoma. In 1893 Pyinmanā District was abolished and became a subdivision of Yamethin.

There are no archaeological remains of importance. A few of the pagodas are reputed to be of ancient date, but the best-known shrine, the Lawkamayazein pagoda near Pyinmanā, is quite modern.

The people.

The population of Yamethin District was 206,557 in 1891, and 243,197 in 1901. Its distribution in the latter year is shown in the table on the opposite page.

YAMETHIN, the head-quarters, and PYINMANĀ are the only towns. The rate of increase during the decade is above the average for Upper Burma. In spite of the fact that the northern half of the District has remained stationary, a remarkable increase has taken place in the wetter southern half, where harvests are more reliable than in the dry zone, and where

the opening up of the country by the railway has produced results much the same as in the adjoining District of Toungoo. Another exceptional feature of the statistics is the increase in the number of residents in urban areas, which amounts to 18 per cent., and stands in marked contrast to the decreases caused by the exodus from so many of the other towns in the dry zone. The southern subdivision consists, however, of huge expanses of forest, and despite the increase in its inhabitants, is still very sparsely populated, the density here being only about 34 persons per square mile. A certain amount of movement is directed from Yamethin towards Lower Burma, but the flow is not to be compared in volume with that which has been taking place of late from the dry zone Districts in the Irrawaddy basin; in fact, there is practically no emigration to the delta. On the other hand, there has been a very considerable immigration from Meiktila and Myingyan Districts. About 94 per cent. of the people are Buddhists. Musalmāns number nearly 8,000, and Hindus and Animists rather more than 2,000 each. The number of Burmese speakers in 1901 was 234,569. Karen is spoken in the hills.

Township.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Yamethin	1,117	1	315	67,872	61	− 4	12,782
Pyawbwe	324	...	211	42,495	131	+ 2	9,285
Yindaw	560	...	241	40,694	73	+ 7	7,293
Pyinmanā	1,474	1	308	61,578	42	+ 34	12,838
Lewe	783	...	209	30,558	39	+ 196	7,379
District total	4,258	2	1,284	243,197	57	+ 18	49,577

Race and occupation.

In 1901 Burmans numbered 227,900, or 94 per cent. of the total population. Karens, the most northerly members of the race in Burma proper, inhabiting the hilly areas in the west of the Pyinmanā township, numbered 2,500 in 1901. A few Chins live in the Pegu Yoma in the west, and a few Taungthus and Taungyos among the Karens in the eastern hills. Shans are fairly evenly distributed over the hilly tracts in the east of the District, numbering 1,440 in 1901. There are about 10,000 Musalmāns and Hindus. Of this large total (greater than in any other District in Upper Burma, except Mandalay) only one-third are immigrants. A large proportion of the Musalmān population is made up of the members of a

Muhammadan colony dating from about the beginning of the eighteenth century, the descendants of a force that came from Delhi to Arakan, and were subsequently scattered in various parts of the kingdom of Ava. The last Census showed that the population dependent upon agriculture was 170,860. The proportion borne by the agricultural to the total population varies considerably from township to township. It is lowest in Pyinmanā (62 per cent.) and highest in Yindaw (88 per cent.), the average for the whole District being 70 per cent.

Christian missions.

The number of Christians in 1901 was 1,002, nearly equal to the total in the other three Districts of the Division added together. This is due to the existence of a large number of Christian Karen villages. Native Christians numbered 827. The Roman Catholics and the American Baptists labour among the people, and have established schools at Pyinmanā and Yamethin.

General agricultural conditions.

Though fertile valleys lie in the western hills, cultivation in the Yamethin subdivision is confined for the most part to the central valley and the uplands watered by the Chaungmagyi, Thitson, and Sinthe *chaungs*, the lowland being for the most part irrigated, and the uplands devoted to 'dry' crops. In the Pyinmanā or southern subdivision the narrow basins of the Mon and Ngalaik *chaungs* produce unirrigated rice and other crops, while the lower valleys of the Yonbin and a neighbouring waterway, the Yeni, and the wide plains drained by these two streams south of Pyinmanā consist of well-irrigated rice lands, this area really belonging to the wet zone of Burma. The principal agricultural implements in use are the plough (*te*) and the harrow (*tun*). Both are employed for tilling sugar-cane fields, and the harrow for all other cultivated lands. Rice is usually sown in nurseries and transplanted; but the seed for *mayin* (dry-season rice) is scattered broadcast in the tanks as they dry up, and in the case of hill rice sown on *taungyas* the seed is dropped into small holes made with a pointed bamboo. In the Yamethin subdivision cultivators usually assist each other in harvesting, but in Pyinmanā, where the landholders are wealthier, labour is for the most part hired. Sugar-cane rotates with early sesamum (three or four months' rest being allowed for the land) in alternate years, while over a considerable area early sesamum and rice are cropped on the same land in one year. *Jowār* is planted in August and September, and harvested in January and February. Maize, like rice, is grown in two crops, dry-season and wet-season respectively, and a similar practice is adopted in the case of peas and

beans. Other crops garnered between January and March are chillies, tomatoes, tobacco, and brinjāls.

The following table gives the main agricultural statistics for 1903–4, in square miles :— Chief agricultural statistics and principal crops.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Yamethin .	1,117	104		
Pyawbwe. .	324	58		
Yindaw . .	560	78	108	2,032
Pyinmanā .	1,474	76		
Lewe . .	783	56		
Total	4,258	372	108	2,032

Rice (for the most part *kaukkyi*) was grown on 236 square miles in 1903–4, and early sesamum covered 74 square miles and *jowār* 50 square miles. Compared with the neighbouring dry zone Districts, the area under crops like cotton, chillies, and pulse is comparatively insignificant. Garden cultivation, represented mainly by plantains, covers only 1,600 acres, and even this area shows a tendency to decrease. The area under sugar-cane, which was 3,200 acres in 1902–3, fell to 1,600 acres in the following year. Large stretches of waste are brought for the first time under the plough every year, the greater part of the new land being planted with rice.

Experimental cultivation is undertaken on a small scale. Various kinds of melons from India have been tried, but their success has not been uniform. Experiments are now being made with ground-nuts, which have succeeded well in the adjoining District of Magwe, and with Havana and Virginia tobacco seed. Loans under the Agriculturists' Loans Act are freely applied for. In 1902–3 Rs. 30,000, and in 1903–4 Rs. 49,000, was advanced under the provisions of this enactment. Improvements in agricultural practice.

The cattle are of a fair type. They are nearly all of Burmese breeds, though a few natives of India possess Indian beasts. Bullocks are used for ploughing in the Yamethin subdivision, the use of buffaloes being confined to the wetter Pyinmanā areas where the soil is heavier. Sheep are fairly numerous in the Yindaw and Pyawbwe townships. There are no recognized grazing grounds, but no difficulty is experienced in rearing live-stock, owing to the large areas of uncultivable land. Cattle, &c.

The irrigated area is about 108 square miles. The Public Works department maintains numerous tanks in the north of the District, the largest being the Kyaukse and the Kyeni or Yamethin tanks. The former is situated 7 miles east of Irrigation and fisheries.

Pyawbwe, and is filled by the Samon and Shweda *chaungs*; its embankment is 3 miles long. The Kyeni tank, close to Yamethin on the east of the town, is on the watershed separating the Irrawaddy and Sittang river basins. It is fed by water from the eastern ranges of hills, and drains north and south into both basins. The area commanded by the Kyaukse tank is 5,000 acres, and by the other Government works about 37 square miles. The area actually irrigated by the former was 3,700 acres in 1903–4. Among the many irrigation works maintained by the cultivators themselves the most important are the dams on the Chaungmagyi in the north-west of the Pyawbwe township, and on the Nyaunggaing and Mon streams, south-east of Yamethin town. In the former, weirs of sand are raised annually to distribute the water into canals through the fields. In the other streams, the weirs are made of stones and sand, renewed every year. The Pyinmanā subdivision contains the Beikpeinbaung and Pyelonchantha tanks, the first 6 miles west of Pyinmanā, the second 2 miles west of Lewe, the Pe-don canal, running parallel to the Palwe *chaung*, the Ela tank, and several minor tanks and weirs. Private canals irrigated 37 square miles, and private tanks 42 square miles, in 1903–4. The only important fisheries are the Paunglaung in the Pyinmanā, and the Sedongyi in the Lewe township.

Forests. The District limits are conterminous with those of the Pyinmanā Forest division, and the total area of 'reserved' forest in 1903–4 was 1,129 square miles. The Reserves are chiefly in the Pyinmanā subdivision, the largest being the Minbyin Reserve (197 square miles in extent), the Palwe (139 square miles), the Ngalaik (125 square miles), the Yonbin (122 square miles), the Sinthe (106 square miles), and the Taungnyo (105 square miles). The Yamethin subdivision contains the Myittha Reserve (90 square miles). The area of unclassed forest in 1903–4 was 903 square miles. The Pyinmanā forests have long been famous for their richness in teak, which, with *pyingado* (*Xylia dolabriformis*), has of late been heavily worked. The latter timber has so far only been extracted from the more accessible parts of the forests, owing to difficulties of transport. Roads are, however, being made to facilitate its extraction from the Yonbin Reserve. Other trees of importance are the *in* (*Dipterocarpus tuberculatus*), the *thitya* (*Shorea obtusa*), the *ingyin* (*Pentacme siamensis*), and the *padauk* (*Pterocarpus indicus*). The most productive timber tracts are in the west, on the slopes of the Yoma, which contain a fair proportion of *indaing* jungle. The forests of the

Yamethin subdivision are considerably less valuable than those of the more southern areas, the best being in the east on the spurs and in the valleys of the Shan plateau. At one time cutch-trees were abundant in parts, but only scrub jungle now remains, in which the trees are all small and of little value for boiling purposes. The forest revenue in 1903-4 amounted to 1·3 lakhs.

Minerals. The mineral resources are poor. Saltpetre can be obtained in parts of the Yamethin subdivision from efflorescences, and the manufacture of salt still lingers on in certain areas in spite of the salt-tax. Clay for pottery is obtained near Pyinmanā. Laterite abounds, though it is not worked, but the extraction of marble from the hills to the east has commenced.

Arts and manufactures. Silk-weaving is carried on to a small extent throughout the District, principally at Taungnyo, north-west of Pyinmanā, where silkworms are reared. The town of Pyinmanā itself is noted for its ornamental pottery. The inlaid metal-work (niello) of the District has a good deal of artistic merit. *Da* or knife blades are thus decorated with gold, silver, and brass at Mindan near Pyawbwe. The result is distinctly attractive, and the industry, though small, has earned a well-deserved reputation.

Commerce and trade. Ordinarily the internal trade presents no features of special interest; but in years of agricultural depression there is a brisk business in rice between the Yamethin and Pyinmanā subdivisions, when the dwellers in the northern uplands are glad to exchange their sesamum and millet for the rice of the wetter southern areas. The chief commercial centre is Pyawbwe on the railway, towards which a considerable portion ot the trade with the Shan States along the Thazi-Taunggyi road moves. This trade is registered at Pyawbwe, and to a small extent also at Theingon in the extreme north-east corner of the District. The trade from the Shan States entering the District in the south is registered at Pyinmanā. The total value of the imports from the Shan States in 1903-4 was 15¼ lakhs, those coming in through Pyawbwe being valued at 10½ lakhs, those through Theingon at 1¾ lakhs, and those following the tracks converging on Pyinmanā at 3 lakhs. The imports included lac (3¼ lakhs), cattle (2½ lakhs), vegetables and fruits, varnish, turmeric, provisions of various kinds, and *thanatpet*. The exports to the Shan States in the same year were valued at 14 lakhs. They included European cotton piece-goods (2½ lakhs), salted fish (1 lakh), silk piece-goods (1 lakh), betel-nuts, salt, petroleum, woollen goods, cotton twist and yarn,

brass and iron-work, raw silk, and pickled tea. The imports from Rangoon are European and Indian goods. Petroleum and sesamum are imported from the neighbouring District of Magwe, betel-leaf and chillies from Meiktila, and betel-nuts from Kyaukse and Toungoo. Paddy, millet, maize, sesamum oil, bamboos, and Shan goods are sent to Rangoon, and bamboos to Meiktila and other places.

Means of communication.

The main line of the Burma Railway passes through the middle of the District from south to north, having 14 stations within its limits. In the northern half of the District land communications are always open and easy, but this is not altogether the case in the south. The chief route to the Shan States is the Pyawbwe-Yinmabin road, which joins the Thazi-Taunggyi road in Meiktila District. Other caravan routes into the Shan States are from Yamethin through Nankwe and the Sindaung pass; from Tatkon via Kyaunggon; and from Tatkon via Kolon. On these routes pack-bullocks are mostly used. The total length of metalled roads in the District is 30 miles, and of unmetalled roads 234 miles. The only metalled road of any length is from Pyinmanā south-westwards to Lewe (10 miles). Of the total length of 264 miles, 190 miles are maintained by Provincial and 74 by Local funds.

Famine.

Since annexation the District has twice suffered from famine, in 1891 and 1896. There is no doubt that distress in these two years was chiefly due to the improvidence of the people. Formerly no market existed for a surplus crop, and the cultivators stored it, but now improved means of transport have provided an easy way of converting the surplus crops into money, which is spent recklessly. In both 1891 and 1896 relief works were opened, and in 1896–7 a considerable number received assistance. The distress was not, however, so severe as in the adjoining District of Meiktila, where the conditions obtaining in the less-favoured northern areas of Yamethin prevail over practically the whole District.

District subdivisions and staff.

The District comprises two subdivisions: Yamethin, comprising the townships of YAMETHIN, PYAWBWE, and YINDAW; and Pyinmanā, comprising the townships of PYINMANĀ and LEWE. Under the subdivisional officer at Pyinmanā are two Karen States, Alechaung Bawgata and Padaung Koywa, situated in the extreme south-east of the District, which are autonomous but pay tribute at Pyinmanā. The townships are in charge of the usual executive officers, under whom are 782 village headmen. At head-quarters are an *akunwun* (in sub-

ordinate charge of the revenue), a treasury officer, and a superintendent of land records, with a staff of 5 inspectors and 52 surveyors. The District forms a subdivision of the Meiktila Public Works division, conterminous with the civil Division; and an Assistant Engineer is stationed at Yamethin, in charge of the Yamethin subdivision of the Eastern Irrigation division, the head-quarters of which are at Kyaukse.

Civil justice and crime. The greater part of the civil work of the District court is done by the additional judge, an officer of the Provincial Civil Service, who resides half the month at Yamethin and half at Meiktila. The township courts are presided over in the first instance by the township officers, but additional judges have been appointed to all of them except that of Yindaw. The additional township judge, Yamethin, is also treasury officer and head-quarters magistrate. One of the additional judges divides his time between Lewe and Pyinmanā, and another between Pyawbwe and Wundwin (in Meiktila District). Crime in Yamethin is of the ordinary type, but robberies and dacoities show signs of increasing, and the District has long been a highway for opium smuggling.

Revenue administration. Under Burmese rule the main sources of revenue were *thathameda*, the rent of state lands, water rate, and other minor imposts. *Thathameda* was first introduced in 1862, the rate then being Rs. 3 per household. Non-state land was not assessed till 1869–70, and in the Yamethin subdivision gradually ceased to pay revenue from 1878–9 onwards. A form of land revenue known as *pegun* was assessed by the *thugyis* over the greater part of the District at varying rates. In the Pyinmanā subdivision, south of the Ngalaik *chaung*, a tax was levied on each yoke of cattle or buffaloes used for ploughing. *Thathameda* gradually increased, as in other parts of Upper Burma, to Rs. 10 a household in the last years of the Mandalay régime. On the annexation of Upper Burma the existing taxation was retained for a while in a modified form, but before long the land rate on non-state land was discontinued in the areas where it was still levied. In 1889–90 the rate per yoke of cattle was raised from Rs. 4–8–0 to Rs. 9; and in 1892–3 a water rate was levied in the Yamethin subdivision on irrigated non-state land. In 1892–3 the rates varied from 12 annas to Rs. 3 an acre on different kinds of land. A revenue settlement was commenced in 1898. The District has been divided for settlement purposes into fourteen tracts. The rates sanctioned differ considerably in the two subdivisions. In Yamethin they range, in the case of state

rice land, from 10 annas to Rs. 4–8–0, and in the case of non-state rice land from 8 annas to Rs. 3–14–0 per acre, the rates levied on crops other than rice being the same for state and non-state land, and varying from 4 annas to Rs. 1–10–0. In the Pyinmanā subdivision state rice land pays from Rs. 1–2–0 to Rs. 4 an acre, the corresponding rates on non-state land ranging from 14 annas to Rs. 3. Other crops on rice land, *yas*, and *taungyas* are not differentiated into state and non-state. Sugar-cane and betel-vines are rated at from Rs. 6 to Rs. 10 per acre; and tobacco, onions, and chillies pay from Rs. 2–8–0 to Rs. 5.

The following table shows the growth in the revenue since 1890–1, in thousands of rupees:—

	1890–1.	1900–1.	1903–4.
Land revenue . .	13	54	3,37
Total revenue . .	5,46	5,94	6,32

After land revenue, *thathameda* is the most important item of receipt. Before the settlement it brought in more than land revenue.

Local and municipal government.

The income of the District fund in 1903–4 was Rs. 43,000, six-sevenths of which was devoted to public works. YAMETHIN and PYINMANĀ are the only municipalities.

Police and jails.

Under the District Superintendent of police are two Assistant Superintendents in charge of the subdivisions. There are 16 police stations and 7 outposts; and the force includes 3 inspectors, 15 head constables, 25 sergeants, and 523 rank and file. Pyawbwe is the head-quarters of a military police battalion, known as the reserve battalion, which numbers about 400 men, and is commanded by a commandant and an assistant commandant. One hundred military police under a *sūbahdār* are quartered at Yamethin, and 50 men under a *jemadār* at Pyinmanā. Yamethin possesses a District jail with accommodation for 119 prisoners, who are engaged in carpentry, painting, rope-making, and gardening.

Education.

The Census of 1901 showed that the proportion of literate persons in Yamethin was 39 per cent. in the case of males and 2 per cent. in that of females, or 20 per cent. for both sexes together. Except a small survey school, no Government or municipal schools are maintained. Education is to some extent in the hands of religious bodies, and the Roman Catholic and Baptist schools are deserving institutions. The District

contained, in 1904, 2 special schools, 11 secondary, 113 primary, and 424 elementary (private) schools, with an attendance of 10,170 pupils (including 773 girls). The number of pupils has fallen somewhat of late, for the total was 3,537 in 1890–1 and 11,835 in 1900–1. The expenditure on education in 1903–4 amounted to Rs. 16,600, Provincial funds contributing Rs. 11,900 and fees Rs. 4,200, the rest being made up of subscriptions.

Hospitals and dispensaries. There are three hospitals and a branch dispensary. These institutions have accommodation for 90 in-patients. In 1903 the number of cases treated was 33,079, including 692 in-patients, and 175 operations were performed. The income amounted to Rs. 8,500, municipal funds contributing Rs. 5,900, Provincial funds Rs. 1,900, and subscriptions Rs. 700.

Vaccination. Vaccination is compulsory only in the two municipalities of the District. During the year 1903–4 the number of persons successfully vaccinated was 10,856, representing 45 per 1,000 of the population.

[R. A. Gibson, *Settlement Report* (1902).]

Yamethin Subdivision.—Northern subdivision of Yamethin District, Upper Burma, comprising the YAMETHIN, PYAWBWE, and YINDAW townships.

Yamethin Township.—Township of Yamethin District, Upper Burma, lying on both sides of the Mandalay-Rangoon railway, between 20° 1′ and 20° 40′ N. and 95° 57′ and 96° 35′ E., with an area of 1,117 square miles. It contains one town, YAMETHIN (population, 8,680), the head-quarters of the township and District, and 315 villages. The population decreased from 70,782 in 1891 to 67,872 in 1901. Failure of harvests has caused a flow to the wetter southern subdivision and to other Districts. The greater part of the township consists of a dry undulating plain, covered with scrub jungle. On the east the hills bordering the Shan plateau are covered with productive forests. In 1903–4 the area cultivated was 104 square miles, and the land revenue and *thathameda* amounted to Rs. 1,14,000.

Pyawbwe.—Northern township of Yamethin District, Upper Burma, lying almost entirely east of the railway, between 20° 30′ and 20° 44′ N. and 95° 59′ and 96° 32′ E., with an area of 324 square miles. The population was 41,536 in 1891, and 42,495 in 1901, distributed in 211 villages. The head-quarters are at Pyawbwe on the railway (population, 6,379). The greater part of the township is level and dry, but in the east on the borders of the Shan States there are hills. The

township contained 58 square miles under cultivation in 1903–4, and the land revenue and *thathameda* amounted to Rs. 78,000.

Yindaw.—North-western township of Yamethin District, Upper Burma, lying between 20° 13′ and 20° 47′ N. and 95° 34′ and 96° 2′ E., with an area of 560 square miles. The population was 37,890 in 1891, and 40,694 in 1901, distributed in 241 villages, Yindaw (population, 2,427), on the road northwards from Yamethin, being the head-quarters. The township marks the northern limit of the Pegu Yoma, which here consists of barren hills separated by fertile valleys. In 1903–4 the area cultivated was 78 square miles, and the land revenue and *thathameda* amounted to Rs. 59,000.

Pyinmanā Subdivision.—Southern subdivision of Yamethin District, Upper Burma, comprising the PYINMANĀ and LEWE townships.

Pyinmanā Township.—Township occupying the centre and south-east of Yamethin District, Upper Burma, and lying between 19° 27′ and 20° 21′ N. and 95° 43′ and 96° 39′ E., with an area of 1,474 square miles. The population increased from 46,021 in 1891 to 61,578 in 1901, distributed in one town, PYINMANĀ (population, 14,388), the head-quarters, and 308 villages. In the hills in the south-east is a Karen colony numbering over 2,000. The township may be described as one large forest, with the exception of the immediate surroundings of Pyinmanā town, and small patches of cultivation near the villages and streams. The rainfall is heavy compared with that of the northern subdivision. The township contained 76 square miles under cultivation in 1903–4, and the land revenue and *thathameda* amounted to Rs. 1,58,000.

Lewe.—South-western township of Yamethin District, Upper Burma, lying between 19° 27′ and 19° 49′ N. and 95° 43′ and 96° 31′ E., with an area of 783 square miles. The greater part is forest. The population has increased very rapidly from 10,328 in 1891 to 30,558 in 1901, distributed in 209 villages. The increase is due to immigration from neighbouring areas, where there have been extensive crop failures. The head-quarters are at Lewe (population, 1,638), on the Yonbin *chaung*, 10 miles from Pyinmanā, and connected with that town by a good road. In 1903–4 the area cultivated was 56 square miles, and the land revenue and *thathameda* amounted to Rs. 1,11,000.

Pyinmanā Town.—Head-quarters of the subdivision of the same name, in Yamethin District, Upper Burma, situated

in 19° 44′ N. and 96° 14′ E., on the Ngalaik *chaung* and the Mandalay-Rangoon railway, 161 miles from Mandalay, 226 from Rangoon, and 49 from the District head-quarters at Yamethin. Under Burmese rule the town was called Ningyan. After annexation dacoities were frequent in the neighbourhood; in fact for several months dacoits, assisted by abundant cover and the deep mud that lay everywhere, practically held part of the urban area. The town is built on either side of the railway and south of the Ngalaik *chaung*, and is well provided with roads. The population was 12,926 in 1891, and 14,388 in 1901, the decade having been one of material progress. The civil station is situated west of the native town, on a crescent of small stony hills encircling a prettily situated lake. From the high ground near the courthouse and club a very picturesque view is to be had of the town, half hidden in tall coco-nut palms, and, over the tree-tops, of the *taungya*-scored mountains to the east. The town owes its prosperity mainly to the teak industry. The lessees of the valuable teak forests in the neighbourhood are the Bombay-Burma Trading Corporation, which at one time had a very large number of employés at Pyinmanā. The town is a flourishing trade centre, and is noted for its pottery. The clay used in its manufacture is of a darkish grey colour, curiously mottled with rust-coloured spots, and is found on the banks of the Ngalaik *chaung*. Patches of colour are applied by rubbing the surface of the clay with pounded sulphate of copper or blue vitriol. After the final burning the parts so treated appear green on a yellow ground, a colour effect which seems to appeal to the aesthetic sense of the Burmese. The glaze is obtained by the application of pounded slag that has been mixed with rice-water till a viscid fluid is obtained.

Pyinmanā was constituted a municipality in 1888. The municipal income and expenditure during the ten years ending 1901 averaged between Rs. 36,000 and Rs. 37,000. In 1903-4 the receipts were Rs. 45,700, the principal sources being bazar fees (Rs. 30,000), and house and land tax (Rs. 8,000). The expenditure amounted to Rs. 38,300, Rs. 6,800 being devoted to conservancy, Rs. 6,600 to roads, and Rs. 4,800 to the hospital and dispensary.

Yamethin Town.—Head-quarters of the District of the same name, Upper Burma, situated in 20° 25′ N. and 96° 9′ E., on the Mandalay-Rangoon railway, 112 miles from Mandalay and 275 miles from Rangoon. It is said to have been founded by king Anawrata of Pagan in the eleventh century A. D., but

the legend has no historical foundation. The original name of the town is declared by some to have been Nwametathin ('a herd of black bullocks'), but others attribute its title to the colour of its water (*ye-me* = 'black water'), which is darkened by the nitrous soil. The town occupies the highest point in the central plain of the District. Its immediate surroundings are flat, but it is within sight of the uplands of the Shan plateau. It contains the usual buildings and a large bazar. The civil station, comprising the courthouse, jail, club, and the residences of the officials, lies to the west of the railway, while the business quarter, with the native town, is situated to the east of the line. A considerable amount of trade concentrates at Yamethin, which is the terminus of numerous Shan caravan routes and an important railway centre. The population increased from 6,584 in 1891 to 8,680 in 1901, and in the latter year included 1,994 natives of India. Yamethin was constituted a municipality in 1888. During the ten years ending 1901 the municipal income averaged between Rs. 17,000 and Rs. 18,000. In 1903-4 the receipts amounted to Rs. 23,700, the principal sources of income being bazar fees (Rs. 12,900) and house and land tax (Rs. 4,400). The expenditure was Rs. 22,000, the chief items of outlay being Rs. 3,000 spent on the hospital, and Rs. 4,000 on conservancy. The municipal hospital has thirty-two beds.

Boundaries, configuration, and hill and river systems.

Myingyan District.—A dry zone District in the Meiktila Division of Upper Burma, lying between 20° 32′ and 21° 46′ N. and 94° 43′ and 96° 1′ E., with an area of 3,137 square miles. On the west it is bounded by the Irrawaddy river, on the north by Sagaing District, on the east by Kyaukse and Meiktila, and on the south by Magwe District. It is an irregularly shaped stretch of arid country, about twice as long as it is broad, stretching south-west and north-east along the eastern bank of the Irrawaddy. Most of it is dry undulating plain-land, diversified by isolated hill masses. The more northerly of these clumps of upland are comparatively insignificant. POPA HILL, however, near the south-east corner, is a conspicuous eminence, forming the most noticeable feature of the District. It is more or less conical in shape; its origin is volcanic, and it has two peaks of almost equal height nearly 5,000 feet above sea-level. While the summit is bare, the lower slopes are covered with gardens, where fruit trees flourish, for owing to its position in the centre of the plains, Popa attracts and catches a liberal rainfall. On the south and east of the main central cone are many spurs extending to the Pin valley and Meiktila. North

of the peak rough and hilly ground extends to the Taungtha hills, which rise from the plain a few miles south of Myingyan town, and attain a height of nearly 2,000 feet. Other stretches of upland deserving of mention are the Taywindaing ridge traversing the Pagan subdivision in the south-west, and the Yondo, the Sekkyadaung, and the Mingun hills in the Myingyan and Natogyi townships, in the extreme north of the District on the borders of Sagaing.

The only river of importance is the IRRAWADDY, which skirts the western border. Entering the District near Sameikkon in the north, it runs in a south-westerly direction for a few miles, then south till it reaches Myingyan town, where it makes a curve to the west, forming, just off Myingyan, a large island called Sinde, which, in the dry season, interposes several miles of sandbank between the steamer channel and the town. After passing this bend, the river again takes a south-westerly course till it reaches Nyaungu (Pagan). Here the channel turns south for a while, then again south-west to Sale, and finally south-east till the southern border of the District is reached. In the channel are numerous fertile islands, on which tobacco, beans, rice, chillies, and miscellaneous crops are grown. Parts of these islands are washed away every year, and fresh islands spring up in their place, a source of endless disputes among the neighbouring *thugyis*. Besides the Irrawaddy, the only perennial streams are the Popa *chaung* in the south and the Hngetpyawaing *chaung* in the north. Only the first of these, however, has an appreciable economic value. The principal intermittent watercourses are the Sindewa, the Pyaungbya, and the Sunlun streams. For the greater part of the year the beds of these are dry sandy channels, but after a heavy fall of rain they are converted into raging torrents.

Geology.

The rocks exposed belong entirely to the Tertiary system, and consist for the most part of soft sandstones of pliocene age thrown into long flat undulations or anticlines by lateral pressure. In some instances denudation has removed the pliocene strata from the crests of the more compressed folds, and exposed the miocene clays and sandstones beneath. These low ridges are separated by broad tracts covered with alluvium. The clay varies in consistency, but is generally light and always friable on the surface, however hard it may be below. The sandstone is of light yellow colour. It forms thick beds, which frequently contain nodular or kidney-shaped concretions of extremely hard siliceous sandstone. The concretions, which are sometimes of considerable size, are arranged

in strings parallel to the bedding, and project out of the surrounding softer materials, forming a very conspicuous feature in the landscape. In parts of the District, chiefly in the south, silicified trunks of trees are found, some of great length. Distinct from the rocks found in the plains is the volcanic Popa region. Dr. Blanford, in 1862, reported that he found six different beds represented on the hill and in its environs, which were as follows: lava of variable thickness capping the whole; soft sands and sandy clays, yellow, greenish, and micaceous; a white sandy bed, abounding in fragments of pumice; volcanic ash, containing quartz and pebbles; ferruginous gravel and sandy clay, containing quartz and pebbles and numerous concretions of peroxide of iron; coarse sand, mostly yellowish, with white specks.

Botany. The cutch-tree is found throughout the District, but it is fast disappearing. Not only is it cut and its very roots dug out of the ground to be boiled down for cutch, but the young trees are much exploited for harrow teeth. The *thitya* (*Shorea obtusa*), *tanaung* (*Acacia leucophloea*), *letpan* (*Bombax malabaricum*), *nyaung* (*Ficus*), and tamarind (*Tamarindus indica*) are the commonest trees. Toddy-palms (*Borassus flabellifer*) are very plentiful, and form an appreciable part of the wealth of the people. Bamboos are found on the low hills on the Meiktila border and on Popa. The jack-tree (*Artocarpus integrifolia*) is common about Popa, and the *zibyu* (*Cicca macrocarpa*) and the *zi* (*Zizyphus Jujuba*) produce fruit which is exported by the ton to Lower Burma, besides being consumed in the District itself. On Popa a little teak and a number of *thitya* and *ingyin* (*Pentacme siamensis*) trees are found.

Fauna. Barely fifty years have elapsed since elephants, *sāmbar*, and tigers roamed the forests in the neighbourhood of Popa. Since the occupation of Upper Burma, however, no elephants have visited the District, and the *sāmbar* and tiger have disappeared, though there are still numerous leopards, and on Popa a few specimens of the serow (*Nemorhaedus sumatrensis*) have been seen and shot. The *thamin* (brow-antlered deer) is scarce, but hog and barking-deer are common, the former in the heavier jungle, the latter everywhere. Wild dogs, which hunt in packs, are found in the Natogyi and Kyaukpadaung townships.

Climate and temperature. The climate of the District is dry and healthy, the atmosphere being practically free from moisture for the greater part of the year. In March and April, and often for several days together throughout the rains, a strong, high, dry, south-west wind sweeps the District, a trial to human beings and a curse

to the crops. Popa, thanks to its elevation, has a pleasantly cool climate during the hot season, but has never been systematically made use of as a sanitarium. The maximum temperature in the Irrawaddy valley varied in 1901 from 105° in May to 85° in December, and the minimum from 75° in May to 56° in December. In July, a typical rains month, the mean was about 80° in the same year.

Owing to its position in the dry zone, the District suffers from a fickle and scanty rainfall. An excessively heavy downpour is often followed by a lengthy spell of dry scorching heat; and it may be said that not much oftener than twice in the year on an average does the sky become black, and true monsoon conditions prevail. At other times the rainfall is confined to small showers and thunderstorms. It is, moreover, not only meagre, but capricious in its course, and leaves tracts here and there altogether unvisited. The rainfall in 1901, which was on the whole normal, varied from $22\frac{1}{2}$ inches at Pagan and Sale to 30 inches in the more hilly townships of Taungtha and Kyaukpadaung. Rainfall.

The early history of the District is bound up with that of the famous Pagan dynasty, the beginnings of which are wrapped in a mist of nebulous tradition. According to legend, the kingdom of Pagan was founded early in the second century by Thamudarit, the nephew of a king of Prome, when that town was destroyed by the Talaings. This monarch is said to have established his capital at Pugama near Nyaungu, and to have been followed by kings who reigned at Pugama, Thiripyitsaya, Tampawadi, and Paukkārāma (or Pagan) for nearly 1,200 years. One of the most famous of these early rulers was Thinga Yaza, who threw off the yellow robe of the *pongyi* and seized the throne, and is credited with having left a mark in history by his establishment of the Burmese era, starting in A.D. 638. The whole history of this early period, however, is unreliable. Pagan itself is said to have been founded in 847 by a later king Pyinbya; and here we have evidence from other sources, which more or less corroborates the date given. The Prome chronicles record a second destruction of Prome by the Talaings in 742, which led to the migration of the reigning house northwards to Pagan. Prome was in all probability raided several times in these early days, and even the later of the two sackings alluded to occurred at a period which can hardly be dignified with the title of historical. The early annals are of little scientific value, but from the accumulated mass of myth and tradition there emerge the two facts that the Pagan History and archaeology.

dynasty originated from Prome, and that it was finally established in the seats it was to make famous not later than the middle of the ninth century. The son and successor of Pyinbya, the founder of Pagan, was murdered by one of his grooms, a scion of the royal family, who succeeded him. One of the murdered king's wives, however, escaped and gave birth to a son, who eventually regained the throne and became the father of Anawrata. This great ruler conquered Thaton, and from the sack of the Talaing capital brought away the king Manuha and a host of captive artificers, whom he employed in building the pagodas for which Pagan has been famous ever since. He died after a reign of forty-two years. His great-grandson, Alaungsithu, extended his sway over Arakan and reigned seventy-five years; he was succeeded by the cruel Narathu, who was assassinated by hired Indian bravoes, and was known afterwards as the *Kalākya min* ('the king overthrown by the foreigners'). While Narapadisithu, one of the last-named monarch's successors, was on the throne the kingdom attained the zenith of its glory, to crumble rapidly in the thirteenth century during the reign of Tayokpyemin, a monarch who earned his title by flying from Pagan before a Chinese invasion which he had brought on his country by the murder of an ambassador. The last king, Kyawzwa, was enticed to a monastery by the three sons of Theingabo, a powerful Shan Sawbwa, who compelled him to assume the yellow robe, and divided among themselves the residue of the Pagan kingdom. Since that time Pagan has played a comparatively unimportant part in Burmese history. Yandabo, where the treaty was signed in 1826 which put an end to the first Burmese War, lies on the Irrawaddy in the north of the District.

A District, with its head-quarters at Myingyan, was constituted in 1885 as the Mandalay expedition passed up the Irrawaddy, and Pagan was made the head-quarters of a second Deputy-Commissioner's charge. These two Districts contained, in addition to the areas now forming Myingyan, portions of Meiktila and Magwe, and the whole of what is now Pakokku District; but Pakokku and Meiktila were shortly afterwards formed, and with the creation of the former Pagan was incorporated in Myingyan. At annexation the local officials surrendered to the expedition, and there was no open hostility. The Burmese governor, however, after remaining loyal for six months, joined the Shwegyobyu pretender at Pakangyi in Pakokku District. During these early days of British dominion trade flourished on the river bank, but throughout 1886 por-

tions of the District were practically held by dacoits, especially in the tract south of Pagan. The northern and eastern areas, however, were kept quiet to a certain extent by the establishment of posts at Sameikkon on the Irrawaddy and Natogyi, inland in the north-east of the District; and combined operations from Myingyan and Ava put a stop to the depredations of a leader who called himself Thinga Yaza. But the mountain valleys about the base of Popa long remained the refuge of cattle-lifters, robbers, and receivers of stolen property, and at least one dacoit was still at large in this tract ten years after annexation. In 1887 a leader named Nga Cho gave considerable trouble in the south, and a second outlaw, Nga Tok, harried the north. The latter was killed in 1888, but the former and another leader, Yan Nyun, famous for his cruelties, disturbed the District for two years more. By 1889 the whole of Myingyan, excepting the Popa tract, was free from dacoits; but it was not till 1890, when Yan Nyun surrendered, that the entire District could be regarded as pacified. Nga Cho remained at large six years longer, but ceased to be a dangerous leader when Yan Nyun came in.

The chief objects of archaeological interest are the ruined temples of PAGAN. In the Natogyi township, at Pyinzi, are the ruins of a moat and wall said to mark the site of the residence of a prosperous prince of olden days. In the Taungtha township, at Konpato, is the Pato pagoda, where a large festival is held every November. Near east Nyaungu is the Kyaukku, or rock-cave pagoda, said to have been built to commemorate the floating of a stone which a *pongyi*, charged with a breach of his monastic vows, flung into the river, establishing his innocence by means of the miracle. In the cliff under the pagoda are several caves inhabited by *pongyis*; and near them are the caves of the Hngetpyittaung *kyaung*, reputed to have been built for Buddhist missionaries from India, and to be connected by an underground passage with the Kyaukku pagoda, more than a mile distant. Festivals are held in November at the Zedigyi pagoda at Sale; in February at the Thegehla pagoda at Pakannge, in the Sale township; in November at the Myatshweku pagoda at Kyaukpadaung; and in July at the Shinbinsagyo pagoda at Uyin, in the Sale township.

The people.

The population was 351,465 in 1891, and 356,052 in 1901. Its distribution in the latter year is shown in the table on the following page.

The two towns are MYINGYAN, the head-quarters, and Nyaungu. The population has been almost stationary for

several years past, and has increased materially only in the rather thinly inhabited township of Pagan. Elsewhere there has been a decrease, or the rise has been insignificant. Partial famines, due to scarcity of rain, have caused considerable emigration from the Sale township, and similar causes have operated elsewhere. A regular ebb and flow of population between the Districts of Meiktila, Yamethin, and Myingyan is regulated largely by the barometer, but, owing to the absence of railways in Myingyan till lately, the inward flow in the more promising seasons has been checked. Though its rate of growth has been slow, Myingyan ranks high among the Districts of Upper Burma in density of population, and the rural population of the Myingyan township is as thick as in many of the delta areas. Buddhism is the prevailing religion; in fact, the adherents of other religions form less than 1 per cent. of the total, and all but a fraction of the inhabitants speak Burmese.

Township.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Myingyan . .	422	1	175	81,978	194	+ 4	20,418
Taungtha . .	516	...	203	57,729	112	...	13,430
Natogyi . .	395	...	160	57,338	145	+ 8	10,861
Pagan . .	582	1	189	56,971	98	+ 15	13,178
Sale . . .	498	...	157	33,993	68	− 25	7,601
Kyaukpadaung .	724	...	304	68,043	94	+ 2	13,853
District total	3,137	2	1,188	356,052	114	+ 1	79,342

Race and occupation.

The number of Burmans in 1901 was 354,100, or more than 99 per cent. of the total population. The District is one of the few in Burma that has no non-Burman indigenous races; and the absence till recently of a railway is doubtless responsible for the smallness of the Indian colony, which numbers only about 1,400, equally divided between Hindus and Musalmāns. In 1901 the number of persons directly dependent on agriculture was 224,095, representing 63 per cent. of the total population, compared with 66, the corresponding percentage for the Province as a whole.

Christian missions.

There are only 180 Christians, 109 of whom are natives, and there is at present comparatively little active missionary work.

Myingyan is, for the most part, a stretch of rolling hills, sparsely covered with stunted vegetation, and cut up by deep nullahs; and most of the cultivation is found on the long and generally narrow valleys separating the ridges, and on the lower slopes of the rising ground. The cultivated areas occur in patches. Rich land is scarce, the rainfall is precarious, and one of the main characteristics of the country is the large extent of *ya* or 'dry' upland cultivation. The District may be divided for agricultural purposes into four tracts—alluvial, upland, valley, and the Popa hill area—while the crops grown on these may be split up into the following seven groups: permanently irrigated rice, *mayin* rice, *mogaung* rice, *ya* crops, *kaing* crops, *taze* crops, and gardens. Both *kaing* and *taze* crops are grown on inundated land in the river-side area. The 'dry' crops, which are of the ordinary kinds (millet, sesamum, and the like), are found away from the Irrawaddy. Some little distance from the river is a strip of poor land running north and south through the west of the Myingyan and Taungtha townships and the east of the Kyaukpadaung township, mainly devoted to the cultivation of millet, with sesamum and pulse as subordinate crops, often as separate harvests on one holding. South-west of this strip, and separated from it by the mass of Popa and the hills branching from it, is the poorest land in the District, occupying the greater part of the Pagan and Sale townships. The staple crop here is early sesamum, followed, as a second harvest, by peas, beans, or *lu*. The uplands occupying the northern portion of the Myingyan township, the western portion of the Natogyi township, and the eastern portion of Taungtha township form, with the adjoining parts of Sagaing and Meiktila, the great cotton-growing tract of Burma, about 200 square miles in extent, nearly half of which lies within Myingyan. *Mogaung* (rain-irrigated) rice lands are cultivated in the east of the Natogyi township in the extreme north-east of the District, while *mayin* is grown in the beds of tanks, and the lower slopes of Popa are covered with plantain groves. The soil in the two richest townships (Natogyi and Myingyan) is loam and clay, and the rainfall is more regular here than in the poorest townships (Sale and Pagan), where gravel and sandstone predominate.

General agricultural conditions.

The table on the following page gives the main agricultural statistics for 1903–4, in square miles.

Chief agricultural statistics and principal crops.

Nearly 140 square miles of the area cultivated in 1903–4 bore two harvests, and about 128 square miles failed to mature. In the same year millet covered about 420, and

sesamum (chiefly the early variety) 336 square miles. Pulse of various kinds was grown on 137, and rice on only 81 square miles, an area quite insufficient for the needs of the District. Cotton covered 88 square miles, and 1,900 acres were under orchards, the greater part being plantain groves.

Township.	Total area.	Cultivated.	Irrigated.	Forests.
Myingyan .	422	183	1	468
Taungtha .	516	172	...	
Natogyi . .	395	161	4	
Pagan . .	582	150	...	
Sale . .	498	113	...	
Kyaukpadaung	724	196	6	
Total	3,137	975	11	468

Improvements in agricultural practice.

Repairs to the Kanna tank have added 4,000 acres to the rice lands in the Natogyi township, but elsewhere the cultivable area has slightly decreased of late, in consequence of the formation of 'reserved' forests. The only new crop that has met with success is the Pondicherry ground-nut, which was introduced a few years ago. In 1903-4 about 800 acres of land were under this crop. It gives a large out-turn and is very remunerative. The experimental cultivation of Havana and Virginia tobacco has not met with success. The leaves of these varieties are looked upon as too small, and the Burmans decline to take the trouble to cure them after American methods.

Practically no advances have been made under the Land Improvement Loans Act. On the other hand, advances under the Agriculturists' Loans Act, for the purchase of seed-grain and plough cattle, are very popular. The advances, which averaged more than Rs. 25,000 in the three years ending 1904, are made on the mutual security of the villagers requiring loans; their recovery on due date is easily effected, and no loss has been caused to the state by any failure in repayment.

Cattle, &c.

The District has always been noted for its bullocks, whose quality is due to the large areas of pasturage that exist on lands not fertile enough for cultivation, or only occasionally cultivated. Cattle-breeding is practised by all the well-to-do cultivators to a greater or less extent. Goat-breeding has largely increased of late. Buffaloes are kept along the banks of the Irrawaddy, but are rare in the interior. A few sheep are reared in Myingyan town by butchers. Myingyan has always held a high place among the pony-breeding centres

of Burma; and locally the palm is awarded to Popa by the Burmans, who credit Popa grass and water with special strength-giving properties, and have given the local breed the name of *kyauksaung-myo*. The necessity of allotting grazing-grounds has not yet arisen, for on the uplands there is abundance of waste land. Inland, away from the Irrawaddy, the question of watering the live-stock is often a difficult one.

Irrigation. Except in the basin of the Pin stream, which supplies a few private canals, there is practically no irrigation beyond what is afforded by tanks entirely dependent on the rainfall or high river-floods. The majority of these are in the north-east of the District, and the most important are the Kanna and the Pyogan. In 1901–2 the newly repaired Kanna tank began to water the fields below it, with the result that land, which used formerly to be cultivated but had dropped out of cultivation, is now being eagerly taken up. It is estimated to be capable of irrigating 4,000 acres. The dam was seriously breached in 1903, but has been repaired. The Pyogan tank irrigates about 1,000 acres. In the neighbourhood of Pyinzi, in the Natogyi township, a number of private tanks water a considerable area, but in the whole District only 6,800 acres were returned as irrigated in 1903–4. Of this area, 2,900 acres drew their supplies from Government works.

Fisheries. In 1901 the District contained 73 fisheries, of which 57 were in the Myingyan and 16 in the Pagan township. The only important one is the Daung, which lies about 5 miles to the south-west of Myingyan town, and dries up enough to produce *mayin* rice from November to April. A large number of the fishermen leave the District annually at the end of November for the delta Districts and Kathā, returning to Myingyan when the rains set in.

Forests. With the exception of a tract in the vicinity of Popa, the forests of Myingyan consist chiefly of dry scrub growth. Here the only plant of any importance is the *Acacia Catechu*, yielding the cutch of commerce. The cutch industry used to be flourishing, but has declined of late years owing to the exhaustion of the supply, due to over-work in the past. Approaching Popa the scrub growth merges into dry forest with *ingyin*, and here and there *thitya* and teak of poor description, while the old crater of Popa and the slopes on the south and east sides of the hill are clothed with evergreen forest. At the close of 1900–1 there were no 'reserved' forests in the District, but since then 74 square miles have been gazetted as Reserves. The area of unreserved forests

is 394 square miles; but hardly anything of value is left in any of the jungle tracts, and the total forest revenue averages only about Rs. 600.

Minerals. Iron ore and sulphur have been found in the Pagan township, but are not worked. In several villages in the Kyaukpadaung township and at Sadaung in the Natogyi township salt is manufactured by primitive methods for local consumption. Petroleum oil has been found by the Burma Oil Company in the neighbourhood of Chauk Village in the Singu circle of the Pagan township. The oil is said to be extraordinarily low-flashing, of a quality similar to that obtained from the Yenangyat wells. A refinery for extracting the naphtha has been built, and in 1903 the company was employing a staff of 7 Americans, 47 natives of India, and 55 Burmans. The Rangoon Oil Company is also boring within the limits of the District.

Arts and manufactures. Cotton-weaving is practised by women on a small scale in nearly every village, the yarn used being generally imported from England or Bombay. A few goldsmiths, who make ornaments for native wear, are found in the towns and large villages; and at Myingyan the inhabitants of one whole street devote their time to casting bells, images, and gongs from brass. Pottery is made at Yandabo and Kadaw in the Myingyan township, and in a few other localities, but only as an occupation subsidiary to agriculture. Lacquer-ware is manufactured by the people of Old Pagan, west Nyaungu, and the adjoining villages. The framework of the articles manufactured is composed of thin slips of bamboos closely plaited together. This is rubbed with a mixture of cow-dung and paddy husk to fill up the interstices, after which a coat of thick black varnish (*thitsī*) is laid on the surface. An iron style is then used to grave the lines, dots, and circles which form the pattern on the outer portion of the box. Several successive coats of cinnabar, yellow orpiment, indigo, and Indian ink are next put on, the box or other article being turned on a primitive lathe so as to rub off the colour not required in the pattern. After each coat of colour has been applied, the article is polished by rubbing with oil and paddy husk. The workmen who apply the different colours are generally short-lived and liable to disease; their gums are always spongy and discoloured. Mats and baskets are woven in the villages on Popa and in the neighbourhood, where bamboos grow plentifully. The principal factory is a cotton-ginning mill in Myingyan town owned by a Bombay firm. It is doing a large

business, and buys up nearly three-fourths of the raw cotton grown in the District, having thus replaced the hand cotton-gins which existed in large numbers before its establishment. In addition to cotton-ginning, the mill extracts oil from cotton seed, and makes cotton-seed cake and country soap. Four other steam ginning factories have been established, and keen competition has caused the prices of the raw material to rule high, and has greatly benefited the cultivators.

Commerce and trade. The external trade is monopolized by Myingyan town, Sameikkon, Taungtha, and Yonzin in the Myingyan, and by Nyaungu, Singu, Sale, and Kyaukye in the Pagan subdivision. The principal traders at Myingyan are Chinese and Indians, but elsewhere the Burmese still have most of the local business in their hands. The chief exports are beans, gram, tobacco, cotton, jaggery, chillies, cutch, wild plums, lacquer-ware, hides, cattle, and ponies. Chief among the imports are rice, paddy, salt and salted fish, hardware, piece-goods, yarn, bamboos, timber, betel-nuts, and petroleum. The imports come in and the exports go out by railway and steamer. Most of the business is done at the main trade centres, but professional pedlars also scour the whole District, hawking imported goods of all sorts among the rural population.

Communications. The branch railway line from Thazi through Meiktila to Myingyan, commenced in 1897 as a famine relief work, has a length of about 32 miles within the District. The country is well provided with roads. Those maintained by the Public Works department have a length of 203 miles, the most important running from Myingyan to Mahlaing (31 miles), from Myingyan to Natogyi (19 miles), and on to Pyinzi near the Kyaukse boundary (15 miles), from Myingyan to Pagan (42 miles), from Pagan to Kyaukpadaung and Letpabya, near the borders of Magwe District (50 miles), and from Kyaukpadaung to Sattein and Taungtha (45 miles). About 400 miles of serviceable fair-weather roads are maintained by the District fund, rather more than one-third of which are in the Pagan township.

The only navigable river is the Irrawaddy, which forms the western border. The Irrawaddy Flotilla Company's steamers (mail and cargo) call at Myingyan, Sameikkon, Nyaungu, Singu, and Sale regularly several times a week each way, and there are daily steamers from Myingyan to Mandalay and Pakokku. A large part of the trade of the riverain tract is carried in country boats. The District contains 19 public ferries, two managed by the Myingyan municipality, one by

the Nyaungu town committee, and 16 by the Deputy-Commissioner for the benefit of the Myingyan District fund.

Famine.

The earliest famine still remembered occurred in 1856-7, when the rains are said to have failed completely and the crops withered in the fields. No steamers were available to bring up rice from Lower Burma, nor was there any railway to carry emigrants down; the result was that the people died in the fields gnawing the bark of trees, or on the highways wandering in search of food, or miserably in their own homes. The more desperate formed themselves into gangs, and murdered, robbed, and plundered. The Burmese government imported rice from the delta, but its price rose to, and remained at, famine level. From the epoch of this famine changes came upon the country. It had brought home to the cultivators the unreliability of rice, and the next few years saw an increase in the area under sesamum, cotton, and *bājra*, and the introduction of *jowār*. The years preceding the annexation in 1885 were bad, and in 1891–2 there was distress. In 1896–7 the early rain did not fall, and the early sesamum, the most important crop in the District, failed completely. No rain fell in either August or September, the November showers never came to fill the ear, and famine resulted. Relief works were opened without delay, and the total number of units (in terms of one day) relieved from November, 1896, to November, 1897, was four and a half millions. Remissions of *thathameda* owing to the famine amounted to nearly 4 lakhs. A total of $1\frac{1}{2}$ lakhs was expended out of the Indian Charitable Relief Fund on aid to the sufferers, and nearly 1 lakh was spent in granting agricultural loans in 1896–7 and 1897–8. The total cost of the famine operations exceeded 11 lakhs. The most important relief work carried out was the Meiktila-Myingyan railway.

District subdivisions and staff.

The District is divided for administrative purposes into two subdivisions: Myingyan, comprising the MYINGYAN, TAUNGTHA, and NATOGYI townships; and Pagan, comprising the PAGAN, SALE, and KYAUKPADAUNG townships. These are staffed by the usual executive officers, under whom are 777 village headmen, 436 of whom draw commission on revenue collections. At head-quarters are an *akunwun* (in subordinate charge of the revenue), a treasury officer, and a superintendent of land records, with a staff of 8 inspectors and 70 surveyors. The District forms a subdivision of the Meiktila Public Works division, and (with Meiktila and Kyaukse Districts) the Kyaukse subdivision of the Mandalay Forest division.

The District, subdivisional, and township courts are as a rule presided over by the usual executive officers. An officer of the Provincial Civil Service is additional judge of the District court, spending half the month at Myingyan and half at Pakokku, and the treasury officer, Myingyan, has been appointed additional judge of the Myingyan township court. The prevailing form of crime in the District is cattle-theft. Litigation is, on the whole, of the ordinary type. Civil justice and crime.

In king Mindon's time *thathameda* was introduced into the District, and in 1867 the rate is said to have been Rs. 3, while in the following year it rose to Rs. 5. The average seems to have fluctuated; but at the time of the British occupation it was nominally Rs. 10 per household, though the actual incidence was probably less than this. In addition to *thathameda*, royal land taxes were paid on islands, land known as *konayadaw*, and *mayin* fields. After annexation revenue was not as a rule assessed on *mayin* rice land, but was paid on the other two classes of royal land—in the case of island land at acre rates (from 1892 onwards); in the case of *konayadaw* at a rate representing the money value of one-fourth of the gross produce. The only unusual tenure found in the District was that under which the *kyedan* or communal lands in 47 circles in the Pagan and Kyaukpadaung townships were held. In former days the people had the right to hold, but not to alienate, these lands, and any person who left the circle forfeited the right to his holding. No rents were paid to the crown for the land, but military service had to be performed if required. The District was brought under summary settlement during the seasons 1899–1901, and in 1901–2 the former land revenue system was superseded by the arrangement now in force. Under this, the rates on non-state rice land vary from 15 annas per acre on *mogaung* to Rs. 3 on irrigated rice; on state lands the rate is a third as much again. On *ya* land the minimum is 4 annas and the maximum Rs. 1–4–0 per acre, and non-state land is assessed at the same rate as state land. The assessment on orchards varies from Rs. 1–14–0 on non-state plantain groves in the plains to Rs. 20 on state betel vineyards. Plantains on Popa pay Rs. 3 or Rs. 4 per acre, according as they are on non-state or state land; and all other garden crops (mangoes, jacks, toddy-palms, &c.) pay Rs. 3, whatever the nature of the land. On riverain *bobabaing* land (*kaing* or *taze*) rates vary from Rs. 1–8–0 for the least valuable crops to Rs. 5–4–0 for onions and sweet potatoes, the state land rates being one-third higher. If an area is twice cropped, Land revenue administration.

only the more valuable crop is assessed. The *thathameda* rate per household was reduced from Rs. 10 to Rs. 3 in 1901.

The growth of the revenue since 1890–1 is shown in the following table, in thousands of rupees:—

	1890–1.	1900–1.	1903–4.
Land revenue . .	13	45	4,45
Total revenue . .	5,92	7,77	9,21

Till the introduction of settlement rates, *thathameda* was by far the most important source of revenue in the District. It fell from Rs. 6,40,000 in 1900–1 to Rs. 2,23,000 in 1903–4.

Local and municipal government.

The income of the District fund in 1903–4 was Rs. 17,200, which is devoted mainly to public works. There is one municipality, MYINGYAN. Pagan was formerly a municipality, but in 1903 a body known as the Nyaungu town committee took the place of the municipal committee.

Police and jails.

The District Superintendent of police has under him 2 Assistant Superintendents (in charge of the Myingyan and Pagan subdivisions), 2 inspectors, 13 head constables, 38 sergeants, and 397 constables, distributed in 11 stations and 15 outposts. The military police belong to the Mandalay battalion, and their sanctioned strength is 205 of all ranks, of whom 145 are stationed at Myingyan, 30 at Nyaungu, and 30 at Kyaukpadaung.

A Central jail is maintained at Myingyan, and a District jail, mainly for leper prisoners, at Pagan. The Myingyan jail has accommodation for 1,322 prisoners, who do wheat-grinding, carpentry, blacksmith's work, cane-work and weaving and gardening. The Pagan jail contains about 60 convicts, half of them lepers. In the leper section only the lightest of industries are carried on; in the non-leper section the usual jail labour is enforced.

Education.

Owing, no doubt, to its large proportion of Burmans, Myingyan showed in 1901 a fair percentage of literate persons—45 in the case of males, 2·4 in that of females, and 22 for both sexes together. In 1904, 5 special, 14 secondary, 111 primary, and 1,145 elementary (private) schools were maintained, with an attendance of 17,724 pupils (including 1,037 girls). The total has been rising steadily, having been 7,539 in 1891 and 15,121 in 1901. The expenditure on education in 1903–4 was Rs. 15,300, of which Provincial funds provided Rs. 12,100, while Rs. 3,100 was contributed by fees.

There are three hospitals with a total of 63 beds, and two dispensaries. In 1903 the number of cases treated was 23,272, including 702 in-patients, and 626 operations were performed. The joint income of the institutions amounted to Rs. 12,100, towards which municipal and town funds contributed Rs. 6,800; Provincial funds, Rs. 3,800; the District fund, Rs. 600; and private subscribers, Rs. 800. Hospitals and dispensaries.

Vaccination is compulsory in the towns of Myingyan and Nyaungu. In 1903-4 the number of persons successfully vaccinated was 10,776, representing 30 per 1,000 of population. Vaccination.

[B. S. Carey, *Settlement Report* (1901).]

Myingyan Subdivision.—Northern subdivision of Myingyan District, Upper Burma, containing the townships of MYINGYAN, TAUNGTHA, and NATOGYI.

Myingyan Township.—River-side township in the extreme north of Myingyan District, Upper Burma, lying between 21° 21′ and 21° 46′ N. and 95° 16′ and 95° 40′ E., with an area of 422 square miles. The greater part is flat and cultivated with *jowār* and pulse, and in the north with cotton. Rice is grown near the Irrawaddy. The population was 78,926 in 1891, and 81,978 in 1901, distributed in one town, MYINGYĀN (population, 16,139), the head-quarters of the township and District, and 175 villages. In 1903-4 the area cultivated was 183 square miles, and the land revenue and *thathameda* amounted to Rs. 1,93,000.

Taungtha.—Central township of Myingyan District, Upper Burma, stretching from the Meiktila District to the Irrawaddy, between 21° 0′ and 21° 26′ N. and 95° 10′ and 95° 39′ E., with an area of 516 square miles. The greater part consists of high ground, sloping down in the west towards the river, on which cotton, *jowār*, beans, and sesamum are grown. Its population was 57,975 in 1891, and 57,729 in 1901, distributed in 203 villages. The head-quarters are at Taungtha (population, 2,175), a small market on the railway, which traverses the township. In 1903-4 the area cultivated was 172 square miles, and the land revenue and *thathameda* amounted to Rs. 1,19,000.

Natogyi.—North-eastern township of Myingyan District, Upper Burma, lying between 21° 18′ and 21° 40′ N. and 95° 31′ and 96° 1′ E., with an area of 395 square miles. Its surface is undulating, rising towards the north and north-west. *Mogaung* rice is grown near the borders of Kyaukse District; the staple crop, however, is cotton. Irrigation renders this the richest township in the District. The population was 52,956 in 1891, and 57,338 in 1901, distributed in 160 villages,

Natogyi (population, 3,146), a prosperous cotton market in the centre of the township, being the head-quarters. In 1903-4 the area cultivated was 161 square miles, and the land revenue and *thathameda* amounted to Rs. 1,17,000.

Pagan Subdivision.—Southern subdivision of Myingyan District, Upper Burma, containing the townships of PAGAN, SALE, and KYAUKPADAUNG. The head-quarters are at Nyaungu, adjoining Pagan on the river bank.

Pagan Township.—Central township of Myingyan District, Upper Burma, lying along the Irrawaddy, between 20° 53′ and 21° 20′ N. and 94° 49′ and 95° 16′ E., with an area of 582 square miles. The soil is poor, and chiefly produces early sesamum, pulse, and *jowār*. The population was 49,606 in 1891, and 56,971 in 1901, distributed in one town, Nyaungu (see PAGAN VILLAGE) (population, 6,254), the head-quarters, and 189 villages. In 1903-4 the area cultivated was 150 square miles, and the land revenue and *thathameda* amounted to Rs. 77,000.

Sale.—South-western township of Myingyan District, Upper Burma, lying along the Irrawaddy, between 20° 32′ and 20° 56′ N. and 94° 43′ and 95° 2′ E., with an area of 498 square miles. The soil is poor; near the river late sesamum is the chief crop, while on the less fertile lands farther from the stream the staple is early sesamum, followed by millet, beans, or *lu*. The population was 45,394 in 1891, and 33,993 in 1901, distributed in 157 villages. Sale (population, 2,514), a village on the bank of the Irrawaddy, and a port of call for river steamers, is the head-quarters. In 1903-4 the area cultivated was 113 square miles, and the land revenue and *thathameda* amounted to Rs. 46,000.

Kyaukpadaung.—South-eastern township of Myingyan District, Upper Burma, lying between 20° 32′ and 21° 6′ N. and 94° 59′ and 95° 33′ E., with an area of 724 square miles. Except in the north-east and east, where the country is occupied by the great mass of Popa, the township is flat and the soil poor. The staple in this part is early sesamum, followed by a second harvest; in the eastern part the chief crop is *jowār*. The population was 66,608 in 1891, and 68,043 in 1901, distributed in 304 villages, Kyaukpadaung (population, 907) being the head-quarters. In 1903-4 the area cultivated was 196 square miles, and the land revenue and *thathameda* amounted to Rs. 1,16,000.

Myingyan Town.—Head-quarters of the District of the same name in Upper Burma, situated in 21° 30′ N. and

95° 23′ E., on the left bank of the Irrawaddy, about 80 miles below Mandalay. The town, which comprises six wards, and has an area of 3½ square miles, stretches for some distance along the bank of the river, but does not extend far inland. It is surrounded by dry, undulating country and partakes of the nature of its environs, containing comparatively little in the way of natural tree vegetation, though steps are now being taken to remedy this defect. It is laid out with several metalled roads, one of the most important of which is the Meiktila road passing through the centre of the town. The public buildings include a jail, courthouse, hospital, and two bazars. The population of Myingyan fell from 19,790 in 1891 to 16,139 in 1901; a diminution due to the removal of the troops as well as to other causes. Its Indian community is small for a large trading town, numbering only 833.

The chief local manufactures are cart-wheels and castings for brass images, bells, and gongs; and it contains a large cotton-ginning mill belonging to a Gujarātī firm. The greater part of the inhabitants are engaged in trade. Before the opening of the Toungoo-Mandalay railway Myingyan was one of the largest towns on the Irrawaddy, doing a large business with Meiktila and Yamethin Districts and with the Southern Shan States; but since the extension of the main line of railway and the departure of troops from the station it has lost much of its importance. The Thazi-Meiktila-Myingyan branch, which now connects it with the main line, was commenced in 1897 as a famine relief work and completed in 1899, and it is hoped that its construction will benefit the town. In the rains the Irrawaddy mail-steamers running between Mandalay and Rangoon call twice weekly at Myingyan. During the dry season the shifting of the channel makes it necessary for the boats to anchor some 3 miles from the town, at Sinde. The railway should remove much of the inconvenience and dislocation of commerce caused by the stream's vagaries. Daily steam ferries ply between Myingyan and Pakokku on the one hand, and Myingyan and Mandalay on the other. The town was constituted a municipality in 1887. During the ten years ending 1901 the municipal income and expenditure averaged between Rs. 35,000 and Rs. 38,000. In 1903–4 the receipts amounted to Rs. 39,000, the main sources of revenue being bazar rents (Rs. 22,000) and house and land tax (Rs. 5,400). The expenditure in the same year amounted to Rs. 41,000, made up for the most part of Rs. 9,000 spent on the hospital, Rs. 7,400 on conservancy, and Rs. 4,600 on lighting.

The water-supply is drawn partly from the river and partly from a deep well sunk by the municipality. A scheme to cost $2\frac{3}{4}$ lakhs, for damming the Sunlun *chaung* some 4 miles south-east of Myingyan, so as to form a reservoir for water-supply, has been sanctioned by Government, and is on the list of famine relief works. The town contains a hospital and a dispensary. The American Baptist Mission and the Buddhist community maintain Anglo-vernacular schools, with a total attendance of about 150 pupils.

Pagan Village.—An ancient ruined capital of the Burmese empire, situated in 21° 10′ N. and 94° 53′ E., on the left bank of the Irrawaddy, in Pagan township, towards the south-west of Myingyan District, Upper Burma, in the neighbourhood of the small town of Nyaungu. Population (1901), 6,254. The name Pagan has been applied somewhat loosely to a number of Burmese capitals established at different times in the neighbourhood of the present village. The earliest of these is said to have been founded about the second century of the Christian era, near a village now known as Taungye, and was called Pugama. Other capitals, known as Thiripyitsaya and Tampawadi, were built later, close by the first site; and finally about the ninth century the site near the present village of Pagan was selected, and remained the head-quarters of the Pagan kings till the overthrow of the dynasty in the thirteenth century (see MYINGYAN DISTRICT). The ruins of the city walls and the traces of the old moat are still to be seen near the village now known as Pagan or Old Pagan. In ancient times the capital was guarded by four concentric brick walls, each with twelve gates. A moat lay on its northern, southern, and eastern faces, while the western side was protected by the Irrawaddy. When first founded the city appears to have been well watered and well wooded, as there are indications that the rainfall must have been sufficiently copious for extensive rice cultivation. The deficiency of the rains in later times can only be ascribed to abnormal deforestation, due to the demand for fuel used in making bricks for the innumerable pagodas and other religious buildings for which Pagan is famous.

The most notable of the thousands of shrines, now more or less ruined, are the Bupayā pagoda, the Manuha temple, the Nanpayā temple, the Shwezigon pagoda, the Nagayon pagoda, the Ananda temple, the Shwegugyi pagoda, the Thatbyinnyu and Sulamani temples, and the Gawdawpalin, Damayazika, and Mahabawdi pagodas. Pyu Saw Ti, the third king of Pagan, is credited with the founding of the Bupayā, one of the most con-

spicuous, said to have been built to commemorate the complete eradication by the founder of a troublesome *bu* (gourd) creeper which had been found a serious obstacle to the cultivation of cereals. The Manuha pagoda, situated two miles south of Pagan, is reputed to have been raised by Manuha, a king of Thaton, who was brought as a captive to Pagan by Anawrata, the most famous of its kings. It contains a gigantic recumbent image of Buddha. The Nanpayā, close to it, is the receptacle of some fine specimens of stone sculpture. The Shwezigon pagoda at Nyaungu is the only notable gilded shrine. Its plinth is adorned with terra-cotta tiles, and within its enclosure are deposited Talaing and Burmese inscriptions of great historical value. It was begun by Anawrata and finished in 1090 by his son Kyansittha. The king employed Indian architects on the Nagayon pagoda (built in 1064), the prototype of the famous Ananda temple, founded in 1090. This latter is Pagan's best-known shrine, and contains stone sculpture of exquisite workmanship and interesting terra-cotta tiles. Its plan, in the form of a Greek cross, and its architecture, which recalls the Jain style, are unique. Alaungsithu, grandson of Kyansittha, founded the Shwegugyi pagoda in 1141, after the model of the sleeping chamber of Buddha, and the Thatbyinnyu pagoda in 1144. The latter is modelled on the lines of the temples of Northern India and has five storeys. Four miles south-west of Nyaungu are the Sulamani pagoda resembling the Thatbyinnyu temple, and the Gawdawpalin and Damayazika pagodas built by the famous Narapadasithu (1167–1204). His successor, Nandaungmya Min, built the Mahabawdi pagoda after the model of the temple at Buddh Gayā in Bengal, the only specimen of its kind to be found in Burma. Pagan is a well-known resort for Buddhist pilgrims and foreign tourists, and a museum has been built within the precincts of the Ananda temple for the exhibition of antiquities found in the neighbourhood. Pagan, or more properly speaking Nyaungu, was at one time a municipality. Since 1903, however, the affairs at Nyaungu have been controlled by a town committee consisting of three members, who in 1903–4 administered a fund, the income of which amounted to Rs. 6,900 and the expenditure to Rs. 10,000.

SHAN STATES, KARENNI, CHIN HILLS, AND PAKOKKU CHIN HILLS

Boundaries, configuration, and hill and river systems.

Shan States, Northern.—A group of Native States lying to the east of Upper Burma proper, and for the most part west of the Salween river, between 21° 31′ and 24° 9′ N. and 96° 13′ and 99° 45′ E. The area of the States is about 21,000 square miles; their shape is roughly that of an obtuse-angled triangle, with the obtuse angle pointing north. On the north this area is bounded by China; on the east by China and the Southern Shan State of Kengtung, from which it is separated by the Nam Hka river; on the south by the Southern Shan States; and on the west by the Mandalay and Ruby Mines Districts and Möngmit. A portion of the eastern boundary, from the point where it crosses the Nam Ting to where it strikes the Nam Hka (both tributaries of the Salween), has not yet been precisely delimited, but it roughly follows the watershed between the Salween and Mekong rivers.

The SALWEEN river is one of the most important features of the States, constituting a formidable natural obstacle between the country east and west. It has a general north to south direction, and flows from China through the entire length of the States, which it roughly divides into two parts. Throughout its course it preserves the same appearance of a gigantic ditch or railway cutting, scooped through the hills, which everywhere rise on either bank 3,000 to 5,000 feet above the river. Another important natural feature of the country is the fault or rift, which marks a line of great geological disturbance, running from the Gokteik pass in Hsīpaw State, in a north-easterly direction, towards the Kunlong ferry on the Salween, and continuing in the same direction far into China along the valley of the Nam Ting. It is roughly defined by the valley of the Nam Tu (Myitnge), below its junction with the Nam Yao, and by the high range of hills called the Loi Hpa Tan, which joins the eminence known as Loi Sak (6,000 feet) farther to the east, and divides North from South Hsenwi. The greater portion of the Northern Shan States, lying west of the Salween and south of this rift, consists of the Shan table-land or plateau, stretching from Hsumhsai eastwards, with

a mean altitude of about 3,000 feet. This comparatively flat area embraces the greater portions of the States of Hsīpaw and South Hsenwi. It is, however, intersected by many hill masses that rise above the level of the plateau, such as Loi Pan in eastern Hsīpaw, which attains a height of nearly 7,000 feet, and Loi Leng in South Hsenwi, nearly 9,000 feet above the sea. The intervening and surrounding country consists of grassy uplands. North of the Nam Tu and the fault referred to above stretches the State of Tawngpeng, a mass of mountains culminating north of the capital in a range 7,500 feet high. The northern portion of North Hsenwi is a huge stretch of upland affected by the fault, which has thrown up a series of parallel ranges extending to the Shweli valley in the north-west, without, however, altogether destroying the general north and south trend, which is characteristic of the Shan hills as a whole. Its large grassy upland plains are sufficiently uniform in their altitude (4,000 feet) to be looked upon for all practical purposes as a plateau.

The central physical feature of South Hsenwi is the huge mountain mass of Loi Leng, referred to above. East of Loi Leng is a range comprising eminences known as Loi Maw, Loi Se, and Loi Lan, which forms the watershed separating the Nam Pang from the Salween, and runs in a north and south direction along the right bank of the latter stream. East of the Salween in the north, and separated from the hilly district of Möngsi in North Hsenwi by the great gulf of the Salween, which flows many thousand feet below, rises the mountainous tract of Kokang, where many of the peaks rise to over 7,000 feet. South of Kokang, in the Sonmu State, the country becomes a medley of hills and valleys, and retains this character throughout the rest of the trans-Salween portion of the Northern Shan States, rising higher and higher towards the eastern range which forms the watershed between the Salween and the Mekong. South of this the country of East Manglön consists, broadly speaking, of the mountain mass which divides the Salween from the upper courses of its tributary, the Nam Hka.

The Northern Shan States are in the drainage area of the Irrawaddy and Salween rivers, all the streams on the west of the watershed finding their way ultimately into the Irrawaddy by way of the Nam Tu (Myitnge) or of the Nam Mao (Shweli), and those on the east into the Salween. The watershed lies at no great distance from the last-named river; and the streams entering its right bank, with the exception of the Nam Pang,

referred to below, have consequently a comparatively short course, with a fall which makes many of them sheer mountain torrents. Among the largest are the Nam Nim and Nam Kyet. Those entering from the left bank of the Salween are of greater length, among the most important being the Nam Ting, which flows from the east, rising in the neighbourhood of Shunning Fu in China, the Nam Nang of the Mothai country, and the Nam Hka which flows through the Wa States. The Nam Pang, although a tributary of the Salween, does not join that river in these States. It is the most important of all the Salween's affluents in this part of the country. Its head-waters are in the hills between Loi Leng and Loi Maw in the South Hsenwi State; and it flows from north to south, parallel to the Salween, for more than 100 miles, separated from it by the intervening hills of Loi Maw, Loi Se, and Loi Lan, and enters the Salween on its right bank four miles below the village of Kenghkam, in the Southern Shan States. It has many tributaries, which flow down from Loi Leng and Loi Maw, and farther south it is joined by the streams which water the circles of Tangyan and Möngyai in South Hsenwi. The Nam Pang has recently been bridged by the Sawbwa of South Hsenwi at Mankat on the Lashio-Tangyan cart-road, where it has a breadth of nearly 200 feet. The Nam Tu or MYITNGE is, after the Salween, the most important river in the Northern Shan States. The main stream rises in the Salween-Irrawaddy watershed, east of Hsenwi town, and flowing generally westwards and southwards, is swelled above Hsīpaw to a considerable river by the Nam Yao, which comes down from the Lashio valley, and by the Nam Ma, which winds through the South Hsenwi hills from Loi Leng. Farther down it is joined by the Nam Hsim on its right and by the Nam Hka on its left bank. Ever pursuing its southward and westward course, it runs through deep gorges between Hsumhsai and Lawksawk, and finally quits the Shan States near the south-west corner of Hsīpaw. The Nam Küt, one of its tributaries, which rushes down from the north-west, is crossed, not far from where it empties itself into the main stream, by the steel girders of the Gokteik viaduct. A cart-bridge over the Nam Tu at Hsīpaw is in course of construction. The Nam Mao or Shweli river (called by the Chinese Lung Kiang) skirts the Northern Shan States on their north-western frontier at Namhkam. One of its more important tributaries, the Nam Paw, has its entire course in North Hsenwi State. There are no lakes worthy of the name except the Nawng Hkeo lake in the Wa country

This sheet of water is said to be about half a mile long and 200 yards broad, but little is known of its appearance or surroundings.

The geology of the Northern Shan States has not been entirely worked out in detail, but enough has been done to show that the rocks for the most part belong to the Palaeozoic period. To the north, in contact with the gneiss of the Ruby Mines District, there is a broad zone of mica schists, followed to the south by a great series of quartzites, slaty shales, and greywackes, which may be of Cambrian age. These rocks formed an old land surface, along the borders of which a series of rocks ranging from Lower Silurian to Mesozoic times is laid down. All these have yielded characteristic fossils. At the base there is a great thickness of limestones, calcareous sandstones, and shales, in which the detached plates of cystideans are very common, especially in the shales. Next follow sandstones with Upper Silurian fossils, which frequently overlie the Lower Silurians, and rest directly upon the older rocks beneath. These rocks are folded and denuded, forming a fresh land surface upon which a great thickness of limestone, which has yielded fossils of Devonian type, is laid down. This limestone extends over the whole of the Shan plateau, and may include strata of Carboniferous age as well as Devonian. To the east of Hsīpaw thick beds of red sandstone are folded in among the limestones, and a calcareous band in these has yielded brachiopods and other fossils which are probably Jurassic or Lower Cretaceous. About 5 miles north of Lashio, in the valley of the Nam Yao river, and in the valley of the Nam Ma, farther south, are patches of Tertiary clays and sandstones, containing workable seams of coal. The fault referred to in an earlier paragraph is perhaps the most prominent geological feature of the country. **Geology.**

The wild crab-apple tree is very common, being met with almost everywhere above 3,000 feet. Wild pear and cherry trees are much in evidence in East Manglön and elsewhere in the States. The giant bamboo and other varieties are frequently met with both in the jungles and round the villages. They form a most important branch of the economic products; in fact, it is difficult to imagine what the Shan would do without plenty of bamboos. Bracken and other ferns abound in certain localities; and these, with the wild violets and wild strawberries that are found on some of the higher ridges, recall the flora of the temperate zone, and afford a marked contrast to the vegetation of the valleys. **Botany.**

Fauna.

The fauna of the States includes the elephant, rhinoceros, tiger, leopard, bear, *gaur*, *tsine* or *hsaing* (*Bos sondaicus*), *sāmbar*, *thamin* (or brow-antlered deer), hog deer, barking-deer, goat, the hare, several varieties of monkeys, the *Hylobates hoolock* or white-browed gibbon, hog, and porcupine, with jungle cats, civet cats, foxes, and squirrels. The game birds include peafowl, jungle fowl, Chinese pheasant, two or three kinds of partridge, quail, duck, snipe, geese, teal, and green and imperial pigeons.

Climate, temperature, and rainfall.

The climate of the States as a whole is temperate and salubrious. With the exception, perhaps, of the valley of the Salween, the Hsīpaw valley is the hottest part. The average maximum temperature there at the beginning of April is about 96°, and the minimum at the same period about 65°. The rainfall at Hsīpaw is less heavy than at Lashio, but in the cold season a dense wet mist hangs over the valley for some hours after sunrise. The health of the police stationed at Hsīpaw has always been very bad, owing to the wide range of daily temperature in the hot season, and to the drenching fogs of the cold season. The climate of North and South Hsenwi is, on the whole, temperate. In the uplands frost occurs in January, February, and March, and as much as ten degrees of frost have been recorded in Möngyin in March. Round Hsenwi town and in the Lashio valley the thermometer rarely falls to freezing-point, but in the hot season the temperature never exceeds 90° for any length of time. The average annual rainfall, except on the higher ranges, seems to be about 60 inches. In Tawngpeng it is heavier than elsewhere in the States. Throughout the whole of West Manglön the climate is unhealthy, as the country alternates between storm-swept hills and steamy valleys. The soil, moreover, except in the narrow basins, is distinctly unproductive, so that it seems improbable that this State will ever increase greatly in prosperity or population. The highest maximum temperature recorded in the shade at Lashio is 99°, the lowest being 62°, while the highest minimum is 70° and the lowest 41°. The rainfall recorded at Lashio for the years 1900 to 1904 was as follows: 1900, 60 inches; 1901, 62 inches; 1902, 51 inches; 1903, 61 inches; and 1904, 76 inches.

History.

The Shans are the representatives, within the limits of the Province, of a very considerable Tai migration wave, which swept over Indo-China, from the regions about South-western China, during the sixth century of the Christian era. The Siamese of the south, the Laos of the country east of Lower Burma, the Hkün and the Lü of Kengtung, and a host of other

communities in the interior of the Indo-Chinese Peninsula, such for instance as the Muongs of Tongking, are all the descendants of the primitive hordes which swarmed down from the northern uplands in those early ages. The Shans proper settled first in the valley of the Shweli or Nam Mao in the extreme north of the existing Shan States; and in course of time a powerful Shan kingdom, known as Möng Mao Long, was established in this country, with its capital at Selan in the north of North Hsenwi, about 13 miles east of Namhkam, where the remains of fortifications are still to be seen. From this centre the movement of the people was westwards and southwards, so that, in process of time, not only had the greater part of the present Southern Shan States been overrun by a Tai folk, but Shans had also occupied a considerable portion of the country lying between the Irrawaddy and the Chindwin (Hkamti, Mogaung, Hsawnghsup, &c.), and had extended into what is now Assam. The ancient chronicles relate that the Mao kingdom, established about the seventh century, was a considerable political force up to the time of Anawrata, the most distinguished monarch of the Pagan dynasty. During the reign of this king, the Mao Shan ruler appears to have been his vassal, but the suzerainty was temporary. The Shans regained their independence later, and the break-up of the Pagan dynasty in the thirteenth century was to a large extent caused by a so-called Chinese invasion from the north-east, which, if not wholly, was, at any rate, partially Shan. After this the Shans were a power in Burma for several centuries, and the early rulers of Sagaing, Pinya, and Myinzaing were of Tai descent. But while these monarchs were making their mark in Upper Burma, the remnants of cohesion among the Tai peoples of the east and north gradually disappeared, the Siamese and Lao dependencies broke off from the main body and united to form a separate kingdom, and the Shans eventually split up into a swarm of petty principalities, which, by the beginning of the seventeenth century, had been subjugated by the Burmans and never wholly threw off the Burmese yoke. Sir George Scott has observed in the *Upper Burma Gazetteer* that the Tai race came very near to being the predominant power in the Farther East. How close they were to this achievement will never, probably, be known with any degree of precision. What is certain, however, is that on the annexation of Upper Burma the British found the Shan States subject to the Burmese crown, but administered by their own rulers, and decided to treat them on their existing footing, and not to bring them under direct administration. From the time

of the annexation onwards the histories of the different Northern Shan States are distinct, and will be found in the articles on HSĪPAW, NORTH and SOUTH HSENWI, MANGLÖN, and TAWNGPENG. The most important events were the disturbances in Hsenwi which led, in 1888, to the splitting up of the State into two portions; the troubles in West Manglön which resulted in its incorporation in East Manglön; the suppression of disaffection among the Kachins in the north; and the visit of the Anglo-Chinese Boundary Commission. The Was have given trouble in the east from time to time.

Archaeology. The most famous pagoda is the Mwedaw at Bawgyo on the Nam Tu near Hsīpaw. The annual festival held there in Tabaung (March) is attended by about 50,000 people from all parts of the States. At Möngheng in South Hsenwi is an ancient and revered shrine, built on a rocky eminence 200 feet high. Several thousand people (including Was from across the Salween) worship at its annual festival in Tabaung. At Manwap in the same State is the Kawnghmu Mwedaw Manloi, supposed to have been built on the spot where Gautama Buddha died in one of his earlier incarnations as a parrot. The pagoda at Möngyai contains a brazen image of Suddhodana, father of Gautama Buddha. The Kawnghmu Kawmöng at Manhpai is popularly supposed to be illuminated by *nats* on moonless nights, and another enchanted pagoda is the large Homang shrine at Tangyan. The Palaungs particularly revere the Loi Hseng pagoda on one of the highest hills in Tawngpeng. Near it stands an ancient tea-tree said to have been grown from the first seed ever introduced into the State. At Tawnio in Kokang (trans-Salween Hsenwi) is a Chinese Joss-house consecrated to Kwang Fu Tso, the military god of the Han dynasty. Its portals are guarded by statues of mounted soldiers, and within are statues of armed foot-soldiers. Other North Hsenwi shrines of importance are the Se-u and the Möngyaw pagodas, and the pagoda of the White Tiger at Namhkam.

Area and population. The population of the Northern Shan States was not known with any accuracy till the Census of 1901. Even then the whole country lying east of the Salween—Kokang, East Manglön, and the Wa States, as well as West Manglön, a mountainous tract of no great width, extending along the western bank of the Salween—was omitted altogether from the operations, while the population of portions of North Hsenwi was estimated. The total of the estimated and enumerated areas was 321,090 (enumerated 275,963, estimated 45,127). That of the omitted areas cannot have been less than 50,000 (it was probably well

above this figure), so that there is reason to believe that, if a complete census could have been taken, the total population of the States would have been found to be about 400,000. The distribution of population for the area covered by the Census of 1901 is shown in the following table :—

State.	Area in square miles.	Number of villages.	Population.	Population per square mile.	Number of persons able to read and write.
North Hsenwi	6,330	939*	118,325	19	2,803 †
Hsīpaw	5,086	1,661	104,700	21	6,998
Tawngpeng	778	274	22,681	29	726
South Hsenwi	2,400	961	67,836	28	2,218
Mandalay-Kunlon Railway construction	...	...	7,548	...	1,276
Total	14,594	3,835*	321,090	22	14,021

* Excluding the estimated area.

† This number excludes literate persons among an estimated population of 45,127, most of whom were *nat*-worshippers and illiterate. The literate persons would not exceed 1,200.

Religion and language statistics were collected in the enumerated areas only. Here 263,985 out of a total population of 275,963 were Buddhists, more than half the remainder being Animists. The distribution of language follows generally that of race, which is indicated below.

Race and occupation.

The greater part of the population of the States is made up of Shans, who numbered 222,200 in 1901 in the enumerated and estimated areas, and are described in more detail below. They form nine-tenths of the population of Hsīpaw, and six-sevenths of that of South Hsenwi. In North Hsenwi they have been forced by the Kachins into the valleys of the Shweli and the Nam Tu, and there form but three-fifths of the total. Besides displacing the Shans in a considerable portion of North Henswi, of which State they form one-fourth of the population, the Kachins have also spread in recent years into the north of Tawngpeng, and as far as the mountainous part of South Hsenwi. In 1901 their total in the enumerated and estimated areas of the Northern Shan States was 34,400. The Palaungs form a considerable portion of the population of Mönglong and of the Kodaung, a hilly tract in the west and north-west of Hsīpaw; and Tawngpeng is practically a Palaung State, two-thirds of its inhabitants belonging to that race. Palaungs are also found in considerable numbers in the hills of North Hsenwi, and have spread into South Hsenwi. In all, the representatives

of the race numbered 35,600 in 1901. The Burman population at the Census totalled 8,100, practically confined to the Hsīpaw State and more particularly to the Hsumhsai sub-State, which is the home of the Danus (numbering 4,800). The Chinese were strongly represented (7,300) in 1901, especially in the hills of North Hsenwi. In very much smaller numbers are found the Was in the eastern borders of South Hsenwi, Lisaws in North and South Hsenwi, and Taungthus in Hsīpaw. The new railway, which was under construction at the time of the Census and was enumerated separately, has brought and will continue to bring large numbers of natives of India to the country. Those returned in 1901 were either navvies on the railway or Government employés at Lashio. Of the population in the omitted portion of the Northern Shan States, that is, the trans-Salween part of Hsenwi (Kokang, the Wa States, and Manglön), nothing but the roughest guess can be hazarded. The Kokang population is mainly Chinese, with a few Palaungs, Shans, Lisaws, and Was; and much the same conditions prevail in Sonmu, except that Was predominate. The Wa States are inhabited by Was. Manglön is divided by the Salween into two portions, east and west. The eastern part is estimated to have a population of about 6,000 to 7,000, of whom 5,000 are Was; and it was calculated that the western part in 1892 contained 12,200 persons, of whom by far the greater number were Shans, the other races including Palaungs, Lisaws, and Muhsös. Christians numbered 238, of whom 165 were natives. In 1901 the number of persons directly dependent upon agriculture was 217,775, or 79 per cent. of the total (enumerated) population. Of this total, 107,482 were dependent on *taungya* (shifting) cultivation. The figures do not include the 45,127 persons estimated in North Hsenwi, who were nearly all cultivators, and mostly *taungya*-cutters. No fewer than 17,354 persons are supported by tea cultivation.

The Shans.

The Tai have been divided into the following divisions: the north-western, the north-eastern, the eastern, and the southern. With the southern, whose principal representatives are the Siamese and the Laos, we have here no immediate concern. The north-western are found for the most part on the west of the Irrawaddy, in the country between that stream and Assam; they include the Hkamti Shans, the Tai inhabitants of the now mainly obsolete States of Mogaung, Wuntho, Hsawnghsup, and Kale, and of the Districts of the Mandalay and Sagaing Divisions. The eastern Tai may be roughly said to inhabit the Southern Shan States, including the Shans

proper of those States, and the Hkün and Lü of Kengtung and Kenghung. The north-eastern division comprises the Shan Tayoks or Shan-Chinese of the Chinese border, and the Shans of the Northern Shan States. The physical characteristics of the Shans differ but little. They are somewhat fairer than the Burmans, their features are rather flatter and their eyes often more prominent, but otherwise there is little to distinguish them from their neighbours. The north-western Shans dress as a rule like the Burmans among whom they live; the eastern and north-eastern Shans, on the other hand, wear, instead of the Burmese waistcloth, a pair of loose, very baggy cotton trousers, and their head-cloth is fuller and more like the Indian's *pagri* than the Burman's *gaungbaung*. The men, moreover, are seldom seen without the characteristic limp plaited grass hat of the Shan country. The dress of the women is much the same as that of the Burmans, with the addition of a head-cloth. The men tattoo their legs and body even more freely than the Burmans. The Shans are Buddhists, and their yellow-robed monks inhabit *pongyi kyaungs* similar to those of Burma proper. Shan is an isolating language, abounding in tones. Burmese Shan (spoken in the States), Hkamti, and Chinese Shan have been placed in the northern, and Hkün and Lü in the southern sub-group of the Tai group, one of the main subdivisions of the Siamese-Chinese sub-family of the Indo-Chinese language family. The total of Shans of all kinds in the Province in 1901 was approximately 850,000.

Agricultural conditions.

There is nothing peculiar connected with the agricultural conditions of the country. The valleys of the States are devoted to low-lying irrigated rice (Shan, *na*) and the hills to *taungya* (Shan, *hai*) shifting cultivation. In many parts the numerous deserted paddy-fields appear to point to exhaustion of the soil. This is especially the case at some distance from the hill-slopes; but nearer the hills, the decayed vegetable matter brought down yearly by the torrents after the destructive jungle fires fertilizes the rice lands, and maintains their yield. Artificial manures are hardly ever used in 'wet' cultivation. In *taungya* or *hai* cultivation the selected hill-slope is prepared by burning the grass, and ploughing and harrowing the ground. The trees are then ringed, the branches lopped off and piled round the trunk, and the whole fired just before the first rains are expected. The ashes are next distributed in small heaps and loose earth is raked over them, the leaves and stubble below are then fired, and the earth is burnt and becomes brick-red in colour, after which the heaps are again spread

out and the seed is sown when the rains begin. A *taungya* can be worked for a term varying in different parts of the country, but rarely exceeding three years. It is a ruinous method of cultivation, for the organic matter is volatilized, and the ash constituents only are left in a highly soluble condition; the available plant-food is in consequence rapidly taken up by the crop, which diminishes each year, and a great quantity of the fertilizing matter is carried down the hill-slopes by surface drainage. In parts of the South Hsenwi State the land has been so thoroughly deforested that little remains but grass, and manure has to take the place of wood-ash in the process described above. Garden crops are grown on the slopes throughout the States in much the same way as *taungyas*, but cattle-manure and ashes are always freely used. The tea cultivation which affords their chief occupation to the Palaungs of Tawngpeng, and to the inhabitants of the hilly Kodaung district of Hsīpaw and of Namlawk in the Wa State of Kanghsö, is deserving of special mention. In Tawngpeng the dark-brown clayey loam is covered with large quantities of decaying vegetable matter, and, as the tea shrub luxuriates in the shade, a hill-slope covered with dense forest is usually selected. The gardens are not laid out on any system, but at random. Seed is collected in November and sown in nurseries in February or later. The plants are kept there till they reach a height of 2 feet or so (generally in the second year), and are then planted out in the clearings in August and September. No manure is used and the trees are never pruned, as they are said to die off if this is done. They are first picked in the fourth year and continue bearing for ten to twelve years, producing three crops a year between March and October. When the yield of leaves begins to get poor the trees are often cut down. New shoots are thrown up from the stool, and these are in turn picked. In gardens, where sufficient room is allowed for growth, the trees attain a much larger size than where close planting prevails. Trees said to be thirty years old and upwards, and still in bearing, are found here.

Agricultural statistics and principal crops.

The total area under crops in the trans-Salween States is approximately 312 square miles, of which about three-quarters are under rice. Tea covers rather over 12 square miles. In addition to rice and tea, poppy, sesamum, ground-nuts, cotton, buckwheat, and maize are grown in the *taungyas*. Poppy is confined for the most part to the trans-Salween country, the hilliest portions of North and South Hsenwi, and the west of Manglön. Rice *taungyas* are sometimes sown with sesamum

in the second and cotton in the third year. Maize and buck-wheat are grown by some of the hill tribes, and peas and beans by the Was. In the homestead plots, onions, yams, brinjāls, indigo, maize, sugar-cane, millet, and beans are cultivated. The orange flourishes in many parts along the Salween and some of its tributaries, and along the Namma in Hsīpaw; and the Hsīpaw Sawbwa possesses excellent orange plantations on the banks of the Nam Tu. The indigenous pineapple is good and is freely cultivated in South Hsenwi, the valley of the Shweli, and the Hsumhsai sub-State of Hsīpaw, where also papayas are plentiful. The local mangoes and plantains do not compare well with those produced in the plains of Burma; and the crab-apples, wild plums, peaches, and pears are more interesting for their associations than for their edible properties. Wild raspberries are found in most parts of the country, and walnuts in the Wa States.

Cattle are bred for pack-work and for sale as draught bullocks to Burmans and natives of India, but are not used for ploughing, slaughtering, or even milking. Buffaloes are bred for ploughing, and are sometimes used for pressing sugar-cane and sesamum oil. By the Was they are employed for sacrificial purposes. There is a good deal of pony-breeding; but young stallions are allowed to run wild with the mares and fillies, and no care whatever is taken in selecting suitable mature beasts for propagating the breed. The small animals produced are mostly used for pack purposes, or exported to Burma for use in hired carriages. Goats and sheep are imported from China, and the latter have done well at Lashio and Tangyan. Grazing for all animals is plentiful throughout the States. **Cattle, ponies, and sheep.**

The area irrigated by means of channels taking off from the streams in the valleys is large. No precise data as to its extent are available, but in the cis-Salween States the total is probably nearly 100 square miles. Much ingenuity is spent on these canals, and on the embankments keeping the water in the terraces of paddy-fields, which follow the contour of the ground. A considerable amount is spent in some States on irrigation works, the actual digging of the waterways being often done by Maingthas. In places fields are irrigated by means of the Persian water-wheel. **Irrigation.**

Teak is found in Hsīpaw, Tawngpeng, and North Hsenwi; but so far Reserves of teak have been formed in Hsīpaw only, which cover 181 square miles, the largest being the Kainggyi Reserve (121 square miles) and the Namma Reserve (50 square **Forests.**

miles). It is not possible to give even the approximate areas of other forest tracts, though there are thousands of square miles of virgin forest. The hill-sides are often covered with pines (*Pinus Khasya*), oaks (of which there are several varieties, including the Himālayan species), and chestnuts. The pine forests are very extensive and probably cover many hundreds of square miles; they are generally found on the more exposed ridges at an altitude of about 4,000 feet. Chestnut trees always form a subordinate feature in the forests in which they occur. *Ingyin* (*Pentacme siamensis*) and *thitya* (*Shorea obtusa*) are found in many parts of the Northern Shan States, the latter being very common in both South Hsenwi and Manglön, often occurring in the midst of pine and oak forests. *Thitsi* (*Melanorrhoea usitata*), the black varnish tree, grows in Hsīpaw, on the northern slopes of Loi Leng, and in the Manhsang circle of South Hsenwi. The gum or resin that exudes from it is much prized for varnishing and for making lacquer-work. The *Cedrela Toona* is another useful tree common in both North and South Hsenwi. The wood has been found admirably adapted for *da* sheaths. The paper mulberry (*Broussonetia papyrifera*) furnishes the raw material used in the manufacture of Shan paper; and the silk cotton-tree (*Bombax malabaricum*) is valued for its down, which is employed for stuffing the pillows or pads inserted below the pack saddles of bullocks. Both these latter trees are common throughout the States. Bamboos grow freely in the vicinity of the villages, and, as elsewhere, are put to almost every conceivable household use. The right to the timber in the forests is reserved to the British Government.

Mines and minerals.

Coal has been found along the valley of the Nam Yao in the Lashio circle of the North Hsenwi State, and higher up the same stream near Möngyaw, as well as along the valleys of the Namma and Nam Pawng in South Hsenwi and Hsīpaw. Analysis has shown the coal found at Lashio to be of very inferior quality. The product of the Namma valley is described as bituminous coal, which should properly be called lignite, and is believed to be good fuel. A seam of lignite was recently struck in the Nam Pat valley in South Hsenwi State in the course of road-making. Tourmaline mines are worked on both sides of the Nam Pai north of the town of Mönglong in Hsīpaw, where well-rounded pebbles of black tourmaline are not uncommon, sometimes attaining the size of a walnut. Rose-pink tourmaline, on the other hand, is much rarer, and is comparatively seldom met with. Salt is manufactured at Mawhkö (Bawgyo) in the Hsīpaw State. The

Bawgyo salt-well is said to have been worked for the last 500 years, and expert opinion has pronounced the brine from it to be the richest known in Burma. Unfortunately it has a bitter taste, which hinders its sale when other salt can be procured. A good deal of the Bawgyo salt is sold, however, in the Shan States, in parts where Mandalay salt is too expensive and where Yünnan block salt does not penetrate.

Silver and lead mines were formerly worked at Bawdwingyi in the Tawngpeng State, and at Könghka on the northern aspect of Loi Leng in the South Hsenwi State. The Bawdwingyi mines are situated in a valley 10 miles south-east of the village of Katlwi, and 5 or 6 miles north of Pangyang. Silver, lead, and copper used to be extracted from these mines, the last only in small quantities. The hills are completely honeycombed with shafts, horizontal and perpendicular, in some of which human skeletons in chains have been discovered. It is said that 2,000 Chinamen were engaged in mining here; and the ruins of stone houses, extending along the valley, and long rows of beehive-shaped smelting ovens and Chinese stone bridges, in perfect preservation, speak to the energy with which these mines were exploited a generation ago. A prospecting licence for this area was issued to a Rangoon firm early in 1902. Silver is said to have been worked in South Hsenwi also, and in the Wa country east of Mönghka. Lead is found in East Manglön, and in the Wa States of Loilön and Santong. Iron is extracted at Hsoptung in the sub-State of Möngtung in Hsīpaw; and gold occurs near Hopai in the Lantaü circle, South Hsenwi, as well as in the streams tributary to the Salween. For years Burmans and Shans have cherished the story that gold in dust, nuggets, and veins was to be found in the Nam Yang Long, which runs into the Nam Hka through the Wa Pet Ken. A visit made to the locality in 1897 failed to disclose any traces of gold. Gold is, however, certainly washed from the sands of the neighbouring stream; in fact, gold-dust is nowhere a rarity in the Shan States, and washing is regularly carried on at many points along the Salween. A mining lease for 3·84 square miles in the valley of the Namma, a small tributary of the Salween, has been granted to a Rangoon firm. The project is to obtain gold by dredging and hydraulic methods. Saltpetre is obtained from bats' guano, collected from the limestone caverns common throughout the States. Many of the Was are said to be adepts at extracting saltpetre, which they bring from beyond the Salween for sale to the Tangyan bazar and elsewhere.

Arts and manufactures.

The pickling of tea is the chief industry of the Palaungs in Tawngpeng and Hsīpaw. On the evening of the day they are plucked, the tea-leaves are steamed over a cauldron of boiling water. They are then spread on a mat, where they are rolled by hand, after which they are thrown into pits and compressed by means of heavy weights. The leaves ferment in the pits and become pickled tea. For preparing dry tea the leaves are steamed and rolled, after which they are spread out in the sun to dry. After about three days water is sprinkled on the leaves, which are again rolled and allowed to dry. They are then sifted through a bamboo sieve, only such leaves as pass through the sieve being accepted. The best quality of pickled tea fetches from Rs. 30 to Rs. 45 per 100 viss (365 lb.), and the best dry tea from Rs. 1-4 to Rs. 2 a viss at the gardens. Pickled tea is exported in conical baskets carried by bullocks. Dry tea is packed in gunny-bags for mule transport, or is carried by porters to the railway.

Cotton-spinning and weaving are carried on by the women in nearly every household in the States, a good deal of cotton being grown in the *taungyas* and sold in the bazars. The implements used, the spinning-wheel, loom, and other plant, and the methods of cleaning, dressing, spinning, and weaving the cotton, are almost identical with those of the Burmans. The more expensive skirts and blankets are often interwoven with graceful and artistic patterns. Among the Shans of North and South Hsenwi curious sleeping webs of cloth are made with zigzag and diamond-shaped patterns, woven in black, red, green, and yellow, the cross-threads being often of silk. Still more intricate is the Kachin work employed in the adornment of shoulder-bags and of the female costume. The work is usually dark blue, with longitudinal blue stripes, but is sometimes all white or composed of equal stripes of red, white, and blue, into which are woven, at intervals, little stars, crosses, or squares of various colours and irregular shapes. Raw silk is obtained by the Shans from the Wa and Lao States, and finds favour in South Hsenwi in the weaving of skirts and blankets. Dyeing is practised in most Shan households where weaving is done, and in most parts of South Hsenwi State, where the beautiful natural dyes of the country still hold their own against the cruder aniline colours of European manufacture. The most common dyes used by the Shans are obtained from the ***Bixa Orellana***, from stick-lac, from indigo, and from the yellow wood of the jack-fruit tree.

The Shan gold- and silversmiths are clever workers, and

occasionally turn out very good *repoussé* work in the shape of gold and silver lime, betel, and other boxes, and *da* and dagger scabbards, gold and silver trappings for Sawbwas' ponies, hairpins, rings, jewellery, goblets, and other articles. Blacksmiths are common throughout the States. Ploughshares are forged, and *das*, choppers, spades and other agricultural implements are manufactured locally. Many of the Was are clever smiths, and Namhkam in North Hsenwi is a great centre for local hardware, which is, however, all manufactured by Chinese or Maingtha smiths, who set up their forges in the town every year. Brass-work is less common, but occasionally large monastery bells are cast, as well as the large booming bullock bells which swing on the necks of the leading beasts of the caravans. Images of Buddha and tattooing implements are made at Hsenwi town, also brass buckles for belts and betel-nut pounders.

Pottery, in the shape of clay water-bottles and earthen chatties, is manufactured at Tapong and Namhön and other villages in South Hsenwi, at Manpan in Möngtung (Hsīpaw), and at Namhkam, Kokang, and elsewhere. North and South Hsenwi turn out a certain amount of red lacquer-work, the principal articles manufactured being the round trays or salvers standing on legs which are used for religious offerings. The lacquered goods consist of a framework of woven bamboo smeared over with a mixture of rice ash and black varnish extracted from the *mai hak* or *thitsī* tree (*Melanorrhoea usitata*), which, after being dried in the sun, receives a coat of red sulphide of mercury. A certain amount of wood-carving is done. It generally takes the form of wooden images of Gautama and of gilded scroll-work (known as *tawng-lai-mawk* to the Shans), used for decorative purposes in the monasteries, and on the *tazaungdaings* which are placed round or near pagodas. Mat-weaving and basket-making are practised generally. Grass mats are woven at Tangyan and Namhkam, but the ordinary kinds are the *hsatpyu* mats, made from the outer, and *hsatnu* from the inner part of the bamboo. The manufacture of a coarse-textured paper from the bark of the paper mulberry (*Broussonetia papyrifera*) is carried on wherever that particular tree is found.

The means of transport employed in the trade of the Northern Shan States now includes the railway from Mandalay to Lashio; and the system of feeder cart-roads connecting the railway with the interior has, to some extent, superseded the older means of transport by mules, pack-bullocks, and Commerce and trade.

pakondans (petty traders who carry their goods on their shoulders). A large trade in surplus rice finds its way by means of bullock caravans to Tawngpeng, the great tea-producing area, where very little rice is cultivated. In former days the rice was exchanged for tea, pickled and dry, which the traders brought down and sold in Mandalay. The cash they received for their tea enabled the traders to return to the Shan States with salt, *ngapi*, salted fish, cotton goods, yarn, matches, kerosene oil, and betel-nuts. Since the opening of the railway, however, the great bulk of the tea produced is exported and most of the goods for the Shan market are imported by rail. But few caravans now make the through trip to Mandalay. As a means of transport the pack-bullock is probably as much used as ever, but the bullock caravans now ply between the tea gardens and the railway, or find their profit in bringing rice to the railway and distributing rail-borne imports throughout the country. Chinese caravans pass through the Northern Shan States every open season on their way to and from the Southern Shan States and Northern Siam. They bring iron cauldrons, copper cooking pots, straw hats made specially for the Shan market, walnuts, persimmons, satin, opium, felted woollen carpets, and fine tobacco. The Panthay settlement at Panglong in Sonmu is a large trading community which does business with Burma and the trans-Salween States. The Was cultivate and export to China large quantities of opium, and agents from Kengtung come north as far as West Manglön and South Hsenwi to purchase the drug. Karenni cutch is brought north by Möng-nai bullock traders, who also fetch up iron agricultural implements from Laihkal. A considerable trade is carried on during the winter months in oranges from Nawnghkam (West Manglön), Namma (Hsīpaw), and Hsīpaw itself, and during the rains in Salween betel-leaf from Nawnghkam. Stick-lac is collected to a large extent by the Kachins of North Hsenwi, who sell it to Indian dealers in the Lashio bazar, whence it is exported to Burma, and carts from Mandalay and Hsīpaw now go far afield into South Hsenwi for rice and sesamum. There is a busy local trade in the interior in home-grown tobacco, fruit, and vegetables ; and the bazars are always well attended. The largest marts are those at Namhkam, Hsīpaw, Nawnghkio, Myaukme, and Namlan. Manchester cotton goods are rapidly supplanting home-made stuffs. Imported yarns and twist, aniline dyes, German-made pencils, and imitation two-anna-piece buttons are among the most noticeable of the imported

articles. The value of the imports from Burma to the Northern Shan States reached a total of 38 lakhs in 1903–4: by the Mandalay-Lashio railway, 22·6 lakhs; by the Maymyo road, 5·8 lakhs; by Namhkam and Bhamo, 5 lakhs; via the Ruby Mines District, 4·7 lakhs. The principal items were European cotton piece-goods (valued at 8·4 lakhs), salted fish and *ngapi* (5·5 lakhs), salt (3·2 lakhs), twist and yarn (mostly European) (3·9 lakhs), Indian cotton piece-goods, petroleum, cattle, betel-leaf, and tobacco. The exports from the States to Burma in the same year were valued at $56\frac{1}{2}$ lakhs: by the railway, 31·7 lakhs; by the Maymyo road, 6·6 lakhs; by Namhkam and Bhamo, 5·7 lakhs; through the Ruby Mines District, 4·5 lakhs; timber and forest produce floated down the Shweli and other streams, 8 lakhs. The chief items were pickled tea (22 lakhs), other tea (9 lakhs), teak timber (7·5 lakhs), husked rice (2·3 lakhs), ponies and mules, *til* seed, and wax.

Means of communication.

Of prime importance in the economy of the country is the Mandalay-Lashio railway, 180 miles in length, of which 126 miles lie within the Northern Shan States. The line is a single track, and was constructed in the face of considerable engineering difficulties, of which not the least notable was the Gokteik gorge, now spanned by a viaduct. It had been proposed to continue the railway about 90 miles farther east to the Kunlong, an important ferry over the Salween, and eventually to penetrate into Yünnan; but this extension is for the present in abeyance. The railway enters the south-west corner of the Hsīpaw State from Mandalay District, and traverses the State in a north-easterly direction, passing through Hsīpaw town and ending at Lashio in North Hsenwi. The Sawbwas of Hsīpaw and North and South Hsenwi have spent large sums in constructing feeder-roads through their States to the railway. Practically parallel with the railway is the Government cart-road from Mandalay to Lashio, bridged but not metalled, running for 111 miles through the States. The principal branch cart-roads, connecting either with the railway or the Government cart-road, are: Nawnghkio to Tawnghkam (24 miles), Nawnghkio to Kalagwe (35 miles), Gokteik to Haikwi and Pongwo (18 miles), Pyawnggawng to Mönglong (55 miles), Hsīpaw to Möngtung (76 miles), with branches to Kehsi Mansam (13 miles) and to the Möngküng border, connecting with the Southern Shan States system, Hsīpaw to Tati (7 miles), Hsīpaw to Möngyai (61 miles), Möngyai to Möngheng (37 miles), Lashio to Tangyan (80 miles), with a branch to Möngyai, Lashio to Hsīpaw (14 miles), Lashio

to Möngyang (21 miles), and Lashio to Kutkai (51 miles). Innumerable rapids and rocks limit navigation on the rivers to short reaches, and the only boats in use are dug-outs, excepting at the ferries. The ferries across the Salween (as we descend the river) are the Möngpawn and the Mönghawm, connecting the Kokang district of North Hsenwi with the cis-Salween country, and the Kunlong (near the mouth of the Nam Ting). These lead into North Hsenwi. Below them are the Möngnawng (or Hsaileng) and the Kawngpong, between South Hsenwi and the Wa country; the Kwipong, the Loihseng, and the Manhsum, used by traders crossing from West Manglön to East Manglön, Mönglem, and other places east of the Salween.

Administration. Five States are controlled by the Superintendent of the Northern Shan States, the chief civil officer (a member of the Burma Commission), who has his head-quarters at Lashio. These are: NORTH HSENWI in the north, SOUTH HSENWI near the Salween in the east, MANGLÖN in the south-east, HSĪPAW in the south-west, and TAWNGPENG in the north-west. The WA STATES east of the Salween can hardly be said to be under British control. In ordinary matters the States are administered by their Sawbwas, who are assisted by *amats* or ministers in various departments. An Assistant Superintendent at Hsīpaw advises the Sawbwas of Hsīpaw and Tawngpeng, officers of similar rank at Kutkai and Tangyan supervise the affairs of the Sawbwas of North and South Hsenwi and Manglön, and an officer of the Subordinate civil service has lately been posted to Namhsan to help the Tawngpeng Sawbwa in the administration of his charge. The extensive Kachin colony in the North Hsenwi State is directly under the civil officer at Kutkai. Lashio itself has been made practically part of Burma proper.

Civil and criminal justice. In the Northern Shan States the criminal and civil administration is vested in the Sawbwas, subject to the limitations laid down in their *sanads* (deeds of appointment), and to restrictions imposed by the extension of enactments and the issue of orders under the Shan States Act or the Burma Laws Act. The customary law of these States has been modified by a notification which specifies the punishments that may be inflicted for offences against the criminal law, limits the infliction of certain punishments to the more heinous offences, and prescribes simple rules of procedure in criminal cases. The Superintendent exercises general control over the administration of criminal justice, has power to call for cases, and

is vested with wide revisionary powers. All criminal jurisdiction in cases in which either the complainant or accused is a European or American, or a Government servant, or a British subject not a native of a Shan State, is withdrawn from the chiefs, and vested in the Superintendent and Assistant Superintendents. In the cases above mentioned the ordinary criminal law in Upper Burma, as modified by the Shan States Laws and Criminal Justice Order, 1895, is in force. In such cases the Superintendent exercises the powers of a District Magistrate and Sessions Judge, and the Assistant Superintendents exercise the powers of a District Magistrate under section 30 and section 34 of the Code of Criminal Procedure. The Superintendent and Assistant Superintendents, if European British subjects, are also *ex officio* justices of the peace in the States. The Superintendent has been specially empowered to withdraw from subordinate magistrates such cases as he thinks fit. He can now also take cognizance of any criminal case, and try or refer it to a subordinate magistrate for trial. The Superintendent and each Assistant Superintendent exercise the powers of a magistrate under the Foreign Jurisdiction and Extradition Act, parts of which are in force in the States. In regard to the administration of civil justice, the customary law has been modified by a notification of 1900, which confers original appellate and revisional jurisdiction on the Superintendent and Assistant Superintendents, creates local courts, and prescribes a simple judicial procedure. Various Acts and Regulations have been extended to the Northern Shan States, and the Gambling, Excise, Cattle Trespass, and certain other Acts are now in force in the civil station of Lashio. In North Hsenwi, the Kachin Hill Tribes Regulation has been extended to the Kachin area. The most prevalent offences occurring in the Northern Shan States are cattle and pony thefts, and (in Hsīpaw State) opium cases.

Revenue administration.

In revenue matters the Sawbwas administer their States in accordance with local customs, which have been but little modified. The main source of revenue is *thathameda*. In Hsīpaw it is levied at the rate of Rs. 10 per household; in Tawngpeng, at Rs. 20 on tea-garden cultivators, Rs. 10 on cultivators of irrigated land, and Rs. 5 on Kachins; in North Hsenwi, at Rs. 4-8 on Kachin families in the Kachin tract, and at Rs. 5 on Shans or other races, whether settled in the Kachin tract or in the Shan circles; in South Hsenwi at Rs. 10 on cultivators of low-lying rice land and Rs. 6 on *taungya*-cutters. Taxes on rice and tea cultivation, bringing

in Rs. 58,000 in 1903–4, are levied in the Hsīpaw State, and a tax, yielding Rs. 62,000, is assessed on every bullock-load of tea exported from Tawngpeng. A tax on opium and liquor is raised by means of licence fees in Hsīpaw and Tawngpeng, which brought in Rs. 42,000 in 1903–4. The total revenue collected in the five cis-Salween States in that year amounted to Rs. 6,26,000, the Hsīpaw State alone receiving considerably more than half. *Thathameda* realized Rs. 3,87,000, and the total tribute paid to the British Government was Rs. 1,20,000.

Police and jails.

The Sawbwas are responsible for the suppression of crime and the preservation of order in their States, and some of them maintain small irregular police forces. In addition, Government maintains a civil police force, which consists of one European Assistant District Superintendent of police, who is stationed at Lashio, one Burman head constable, and 65 policemen recruited in the Shan States. These police are for the most part engaged in the prevention and detection of crime in the tract of country directly bordering on the railway. There are 3 police stations—at Lashio, Hsīpaw, and Nawnghkio. The Northern Shan States military police battalion has its head-quarters at Lashio. The force is under a commandant, with one assistant commandant, and the total strength of the battalion is 505 men. The majority of them are stationed at Lashio, and there are 100 at Kutkai and 30 each at Hsīpaw and Tangyan.

Hsīpaw State maintains a jail of its own, with an average of about twenty convicts. The prisoners are engaged in outdoor work, and keep up the jail garden, which produces vegetables for sale in the local bazar. They also undertake repairs on State buildings, the jail itself being a product of prison labour. Short-term prisoners in other States are kept in the State lock-ups. Long-term prisoners are sent to serve out their sentences in a Burma jail.

Education.

Elementary education is imparted in the *pongyi kyaungs* of the States, but the standard of literacy is low, and in 1901 only 9·7 per cent. of the male population were able to read and write. American Baptist Mission schools are maintained at Hsīpaw and Namhkam, and the Hsīpaw school has 2 masters and about 40 scholars.

Hospitals and dispensaries.

There are civil hospitals at Lashio and Hsīpaw, with accommodation for 22 in-patients, and a dispensary at Kutkai. In 1903 the number of cases treated was 10,336, including 366 in-patients, and 119 operations were performed. The income

amounted to Rs. 7,800, derived almost entirely from Provincial funds. There is a hospital at Hsīpaw, managed by the American Baptist Mission, with 24 beds. In 1903 the number of cases treated at this institution was 1,846, including 20 in-patients. Another hospital, under the same agency, is situated at Namhkam.

Vaccination. In 1903-4 the number of persons successfully vaccinated was 7,233, representing 23 per 1,000 of population.

[Sir J. G. Scott, *Upper Burma Gazetteer* (5 vols., Rangoon, 1900-1); *Burma: a Handbook of Practical Information* (1906); C. C. Lowis, *A Note on the Palaungs* (Rangoon, 1906).]

Hsenwi, North (*Theinni*).—One of the Northern Shan States, Burma, lying between 22° 37′ and 24° 9′ N. and 97° 14′ and 98° 55′ E., with an area of 6,330 square miles. It lies, for the most part, west of the Salween, and is bounded on the north and east by China; on the south by the Wa States east of the Salween and by South Hsenwi west of it; and on the west by the Hsīpaw, Tawngpeng, and Möngmit States and Bhamo District. The greater part of the northern section is a mass of hills inhabited by Kachins; Palaung villages are numerous in places, and a good many Chinese settlements are scattered about. Even here, however, a number of valleys under rice cultivation remain in the hands of the Shans. The trans-Salween portion of this northern area forms the rugged district of Kokang, where most of the inhabitants are Chinese. The southern half of the State is at a much lower level, and has more flat land, along the valleys of the Nam Tu and its tributaries. This is the most valuable part of the State, and is inhabited almost entirely by Shans, with isolated circles of Kachins and other hill tribes. The valley of the Shweli along the northern border is fertile, and peopled by Shans. North and South Hsenwi did not exist as separate States before 1888. The old State of Hsenwi included, besides North and South Hsenwi, the present Southern Shan States of Kehsi Mansam, Mönghsu, Möngsang, Kenglön, and Möngnawng, and exercised a kind of suzerainty over Manglön and its dependencies across the Salween. The principality disintegrated, however, in later Burmese times, into five divisions, each under an independent ruler or more than one; and in king Thibaw's time it had fallen into a hopeless state of disorder, in consequence of the rebellion of Sang Hai, a subordinate official, whose relations had been murdered by the Sawbwa Hseng Naw Hpa in 1855. At the time of the annexation of Upper Burma, Hsenwi was divided into three camps. The northern portion of the State was in the hands of Hkun

Sang Ton Hung, one of Sang Hai's followers and his successor. In the southern portion a man named Sang Aw, commonly known as the Pa-ok-chok, had obtained the upper hand. The titular Sawbwa, Naw Hpa, was at the time in shelter at Möngsi in the north. He, however, had his supporters; and on the fall of Mandalay, his son, Naw Möng, arrived on the scene and occupied Lashio. Intestine hostilities followed during 1887; but in 1888 a British column arrived at Hsenwi, and a conference at Möngyai resulted in the division of the State into North and South Hsenwi, the former being allotted to Hkun Sang Ton Hung and the latter to Naw Möng. The Pa-ok-chok died in the following year, and a rebellion, headed by members of his family in 1888, was promptly suppressed by British intervention. In 1892–3 the Kachins rose against the Sawbwa of North Hsenwi, and the tracts inhabited by them are now directly administered by a British officer. Since then there have been no serious disturbances. The population of the State in 1901 (excluding Kokang, which, like the rest of the trans-Salween country, was omitted from the census operations) was 118,325, Shans numbering about 72,000, Kachins 29,000, Palaungs 10,000, and Chinese 5,000. The number of villages (excluding the 'estimated' tract) was 939. The Kachin hill tracts are under a civil officer at Kutkai, north of Lashio, who is also adviser to the Sawbwa in his administration of the rest of the State. The capital is Hsenwi (population, 1,305), north of Lashio, on the Nam Tu river, in the centre of the State. LASHIO itself is in the State, and other places of importance are: Namhkam (population, about 2,000), a trade centre in the north-west close to the borders of Möngmit, Bhamo, and China; and Möngsi and Tawnio, farther to the east. The revenue of the State in 1903–4 was Rs. 91,000, mainly from *thathameda*. The tribute payable to the British Government until 1907 has been fixed at Rs. 10,000; the other items of expenditure in 1903–4 were Rs. 30,000 spent on public works, Rs. 25,000 on administration and salaries, and Rs. 22,000 devoted to the privy purse.

Lashio.—Head-quarters of the Superintendent of the Northern Shan States, Burma, situated in 22° 56′ N. and 97° 45′ E., at the western corner of North Hsenwi, about 2,800 feet above the sea. It consists of a civil station, a military police post, small settlements of natives of India, Burmans, and Chinese, and some scattered hamlets of Shans. The civil station proper is situated on a low spur overlooking the upper valley of the Nam Yao. The railway station, which

is the present terminus of the Mandalay-Lashio branch, is 2 miles distant in the valley. By cart-road Lashio is 178 miles, and by railway 180 miles, from Mandalay.

The climate is good, though, like most places in the Shan States, there is a very considerable range of temperature. During the five years ending 1904 the average maximum temperature was 81°, and the average minimum 60° (mean temperature 70°). The annual rainfall for the same period averaged 62 inches. The population in 1901 (before the railway was opened) was 1,613, including military police. In April, 1904, however, the limits of the station were extended, and the population of the area now included was 2,565 according to the Census of 1901. The native population comprises Shans, Burmans, natives of India, Palaungs, and Chinese. The civil hospital has 20 beds, and a military police hospital 24. At the former 408 in-patients and 7,087 out-patients were treated in 1904. Lashio has recently been constituted a 'notified area,' and its affairs are managed by a committee of five members. There is a small daily bazar, and a large market is held every five days, the latter being fairly well attended by people from the neighbouring villages. The immediate vicinity of the station does not produce any commodities for export, but several traders have settled since the opening of the railway, and a certain amount of merchandise changes hands here. The Shan village of Old Lashio, about 2 miles off in the valley, has a considerable market for opium. The great want of the place hitherto has been a good and permanent water-supply. Steps have been taken recently to supply this defect, and a pipe water-supply is in course of construction.

Hsīpaw (Burmese, *Thībaw*).—One of the Northern Shan States, Burma, lying between 21° 56′ and 22° 56′ N. and 96° 13′ and 98° 0′ E., with an area of 5,086 square miles. It is bounded on the north by the Ruby Mines District and the States of Möngmit and Tawngpeng; on the east by North and South Hsenwi; on the south by the Southern Shan States; and on the west by Mandalay District, from which it is separated for some distance by the Nam Pai river. It is divided into four sub-States: Hsīpaw proper, in the centre and north-east, Hsumhsai in the south-west, Mönglong in the north-west, and Möngtung in the south-east. The main State lies on the geological fault which runs east and west from the Salween at Kunlong to near the rim of the Shan table-land at the Gokteik gorge, and the face of the country is here broken up into a mass of not very well-defined ridges and spurs. The

chief plain land is in the valley of the Nam Tu near Hsīpaw, and the Pyawnggawng-Nawngpeng strath south-west of the capital of the State. The other valleys are insignificant. The country is drained by the Nam Tu, which, on the southern border of the State, runs in a deep gorge about 2,000 feet below the general level of the country. One of the chief natural features of the State is the Gokteik gorge, down which flows a small tributary of the Nam Tu. *Taungya* rice is grown on the hills and 'wet' rice in the valleys. Other crops cultivated are sesamum, the *thanat* tree (the leaf of which is used for cigar-wrappers), cotton, ginger, and, in what is known as the Kodaung tract in the west and north-west, tea. The present Sawbwa of Hsīpaw is the grandson of Sao Kya Tun, who was appointed Sawbwa by king Mindon as a reward for his assistance in removing Pagan Min from the Burmese throne. The State submitted to the British after the occupation of Mandalay in 1886. The Sawbwa, Hkun Saing by name, had fled, before the persecutions of king Thībaw, to Siam and Rangoon, where he was imprisoned in 1882 for causing the death of two of his servants. On his release he took refuge for a while in Karenni; and at the time of annexation, having obtained assistance from Sawlapaw, the chief of Karenni, he proceeded to Hsīpaw and regained his throne in time to be the first Shan chieftain submitting to the British rule. In recognition of this early submission, he was rewarded with the sub-States of Mönglong, Möngtung, and Hsumhsai, which were added to Hsīpaw proper. He visited England in 1893, and was succeeded in 1902 by his eldest son, who had been partly educated in England. The population of the State, in 1901, was 104,700, distributed in 1,661 villages. By far the greater portion (approximately 90,000) are Shans; Burmans and Danus (mainly in the Hsumhsai sub-State) numbered about 10,000; and in the hilly Kodaung tract are Palaungs (about 3,000). The rest of the population consists practically of Kachins and natives of India. The capital is Hsīpaw (population, 3,656), situated 134 miles from Mandalay, in the middle of a hill-girt valley on the banks of the Myitnge river, over which a bridge is in course of construction. Hsīpaw is one of the principal towns on the Mandalay-Lashio railway, and is the head-quarters of an Assistant Superintendent of the Shan States, whose residence, close to the Sawbwa's *haw* or palace, overlooks the Myitnge. The revenue in 1903-4 was Rs. 3,43,000, towards which *thathameda* contributed Rs. 1,76,000; opium, liquor, and bazar fees, Rs. 78,000;

and land tax, Rs. 58,000. The expenditure in the same year included Rs. 1,45,000 spent on administration and salaries, Rs. 77,000 on public works, Rs. 24,000 contributed to the privy purse, and Rs. 70,000 tribute to the British Government.

Tawngpeng, (Burmese, *Taungbaing*).—One of the Northern Shan States, Burma, lying between 22° 40′ and 23° 12′ N. and 96° 52′ and 97° 28′ E., with an area of 778 square miles. It is bounded on the north by Möngmit, on the east by North Hsenwi, and on the south and west by Hsīpaw. The State forms a small compact mass of hills with a deeply indented boundary. The Nam Tu river runs through it from north to south, cutting off from the rest a strip on the eastern side, about 10 miles broad and 30 long. This part is fairly level and undulating; west of the Nam Tu the country is a maze of hill ridges, only the valleys in the south-west having sufficient level ground for lowland rice cultivation. The principal industry of the State is the production and manufacture of tea (see NORTHERN SHAN STATES). *Le* rice is cultivated in the Möngngaw valley in the south-west of the State, but elsewhere what rice is grown is practically all *taungya*. Of the history of Tawngpeng little is known, and such chronicles as exist are almost wholly legendary. Two successive Sawbwas, Hkun Hsa and Hkun Kyan, rebelled against king Mindon, and both paid for their indiscretion with their lives. The next Sawbwa was murdered by a rival, Kwan Kon, who remained on good terms with Mandalay, but was succeeded by Hkam Möng, a weak-minded ruler, who refused to meet the British in 1887, and was deposed. His son, Ton Möng, was put in his place by the Government in 1888. He died in 1897, and was succeeded by the present Sawbwa. The population in 1901 was 22,681, distributed in 274 villages. The majority of the inhabitants are Palaungs, to which race the Sawbwa belongs. They inhabit the hills west of the Nam Tu, and their total in 1901 was about 16,000. The Shan population is confined for the most part to the valleys on either side of the river, and numbers about 5,000. Kachins, to the number of 1,500, are settled on the hills east of the river, and there is a sprinkling of Lisaws. The revenue consists mainly of *thathameda* and a tax on tea (levied on the bullock-load). In 1903–4 the tea tax brought in Rs. 62,000; *thathameda*, Rs. 40,000; and licence fees of various kinds, Rs. 8,000; in all Rs. 1,10,000. The expenditure in that year included Rs. 77,000 devoted to the privy purse, Rs. 13,000 spent on administration and salaries, and Rs. 20,000 tribute to the British Government.

The capital of the State is at Namhsan (population, 912), a large village situated about 5,000 feet above the sea at the northern end of one of the main hill ridges. It is the head-quarters of an officer who has been recently stationed in Tawngpeng to supervise the Sawbwa's financial affairs. Other important villages in Tawngpeng are Möngngaw in the south-west, Wingmaü in the west, and Saram a few miles north-west of Namhsan.

Hsenwi, South (*Theinni*).—One of the Northern Shan States, Burma, lying between 22° 4′ and 23° 1′ N. and 97° 43′ and 98° 39′ E., with an area of 2,400 square miles. It is bounded on the north by North Hsenwi; on the south by Manglön and the Southern Shan State of Kehsi Mansam; on the east by the Salween, the Wa States, and West Manglön; and on the west by Hsīpaw and North Hsenwi. The State is practically bisected by the huge upland mass of Loi Leng and the spurs extending south from it. Apart from this, it consists of broken hilly country or open rolling downs, the latter chiefly in the east of the State. It is watered by numerous streams, the most important being the Nam Pang, a tributary of the Salween. The cultivation consists of *taungyas* and level rice-fields in about equal proportions. Besides rice, cotton, sugar-cane, and a little opium are grown on the hill-slopes; and there are gardens in each village. The history of the State has been narrated in the article on HSENWI, NORTH. The population in 1901 was 67,836, distributed in 961 villages. The pre-dominant race is the Shan, numbering 60,169. In the more hilly tracts are Kachins and Palaungs, numbering 2,320 and 2,568 respectively; and a number of Chinese villages contain altogether 1,406 inhabitants. The rest of the population con-sists of Burmans, Lisaws, and Was. On a tributary of the Nam Pang, in the east of the State, is Tangyan, the head-quarters of the Assistant Superintendent in charge of South Hsenwi and Manglön. The capital is Möngyai (population, 579), situated in a fertile plain in the south-west. The revenue in 1903–4 amounted to Rs. 71,000 (entirely *thathameda*). Of this sum Rs. 20,000 was paid as tribute to the British Government, Rs. 19,000 went towards administration and salaries, Rs. 18,000 to the privy purse, and Rs. 14,000 towards public works.

Manglön.—One of the Northern Shan States, Burma, lying astride of the Salween, between 21° 31′ and 22° 54′ N. and 98° 20′ and 99° 18′ E., and having, with its sub-feudatory States, an area of about 3,000 square miles. It is bounded on the north by South Hsenwi and the Wa States; on the east by the

Wa States, China, and the Southern Shan States of Kengtung (from which it is separated by the Nam Hka river); on the south by Möngnawng; on the west by Möngnawng, Mönghsu, Kehsi Mansam, and South Hsenwi. The State proper is divided into East and West Manglön by the Salween; and the Sawbwa has control over the sub-States of Mothai in the extreme north and Mawhpa in the extreme south (both lying almost entirely east of the Salween), also of Manghseng on the left bank of the Salween, and Ngekting east of it. The country east of the Salween consists, in the south, of the broad mountain mass separating the valleys of the Salween and its important tributary the Nam Hka. The northern part is drained by short tributaries of the Salween, and is composed of steep hills and deep narrow valleys. West Manglön is a narrow strip of hill country, little wider than the ridge following the Salween river, and cut up by a number of narrow valleys.

The authentic history of Manglön begins about eighty years ago with the rise of a Wa chief, Ta Awng, who retained his hold on the State by becoming tributary to Hsenwi. At the time of annexation, trans-Salween Manglön was in charge of a Sawbwa named Tön Hsang, the cis-Salween territory being administered by the Sawbwa's brother, Sao Maha. Considerable difficulty was experienced by the British in dealing with the latter, who refused to attend the *darbār* at Möngyai in 1881. Acting under the influence of Sao Weng, the ex-Sawbwa of Lawksawk, he persistently refused to come in, and deserted his State in 1892 when a British party marched through it. Tön Hsang was then put in charge of West Manglön as well as of his own country east of the Salween, but had to suffer an attack by Sao Maha immediately afterwards. One more chance of reforming was given to the latter and he was then definitely expelled, and West Manglön has since remained undisturbed in Tön Hsang's charge. East Manglön has suffered from time to time from raids on the part of the independent Wa chiefs to the east, but the State as a whole is gradually settling down. The exact population is not known, as the State was wholly omitted from the census operations in 1901, but it is probably not below 40,000. The inhabitants of East Manglön and of the sub-States are mainly Was, the Shans being confined to the valleys; West Manglön is almost wholly Shan. Lisaws and Chinese are found on both sides of the Salween, and Palaungs in West Manglön. The capital, Taküt, is situated in the mountains of East Manglön, but some of the officials are quartered at Pangyang a few miles to the

south. The revenue consists entirely of *thathameda*, amounting in 1903–4 to Rs. 11,000. Of this Rs. 4,200 went to the privy purse, and Rs. 4,200 towards administration and salaries, and Rs. 2,000 was spent on public works. The tribute to the British Government is only Rs. 500.

Wa States.—A collection of small States in Burma, lying between about 21° 30′ and 23° 30′ N., east of the Salween and of that portion of the Northern Shan States which is directly controlled by the Superintendent at Lashio. It consists, for the most part, of rugged mountainous country of which very little is known, and is inhabited by various races, among whom the Was predominate. A good deal of the south-western portion of the Wa country is taken up by the State of MANGLÖN. Wa government is practically a system of village communities. The population of Sonmu is mixed. The State contains Kachins, Shans, and Panthays, as well as Was; and the settlement of Panthay (Chinese Muhammadan) muleteers at Panglong is an important one. Mönghka is a Muhsö, and Mönghsaw a Lao Shan, settlement in the Wa country. The control exercised over the Wa States (with the exception of Manglön) is for the present only nominal.

Boundaries, configuration, and hill and river systems.

Shan States, Southern.—A group of Native States in Burma, under the charge of a Superintendent, lying between 19° 20′ and 22° 16′ N. and 96° 13′ and 101° 9′ E., with an area of about 36,000 square miles. They are bounded on the north by the Northern Shan States, from which they are separated for some distance by the Nam Tu or Myitnge river; on the east by China; on the south by China, the French Lao territory, Siam, and Karenni; and on the west by the Kyaukse, Meiktila, and Yamethin Districts of Upper Burma, and the Toungoo District of Lower Burma.

With the exception of a tract on the western boundary and the eastern half of the Kengtung State towards the China border, the States lie in the drainage area of the Salween, which roughly bisects them, flowing first in a general southerly course, and then south-west into Karenni. The eastern part of the Kengtung State drains into the Mekong, of which the principal tributaries are the Nam Lwi, the Nam Lin, and the Nam Hkok, the last named flowing for the greater part of its course in Chinese territory. The most noteworthy tributaries of the Salween on its eastern side within the limits of the Southern Shan States are the Nam Hka, forming the northern boundary of the trans-Salween areas, and the Nam Hsim farther south. Its western tributaries are of more importance

than its eastern, and their courses are all more or less parallel with that of the Salween itself. The Nam Pang rises in South Hsenwi in the Northern Shan States, and waters the north-eastern cis-Salween States, joining the Salween in the Kenghkam State after a general southerly course. The Nam Teng rises in the north in Möngküng and flows south into Möngnai; there it bends eastwards till within 13 miles of the Salween, after which it turns south-west, and eventually joins the Salween about 15 miles above the Karenni boundary, after a course of about 250 miles. West of the Nam Teng is the Nam Pawn. This stream has its source in the hills of Laihka and flows southwards into Karenni, emptying itself finally into the Salween after a course of 300 miles. At about 20° N. it is joined from the west by the Nam Tamhpak, which rises in the small Hopong State and drains the eastern half of the central division, running parallel with the Nam Pawn, at a mean distance of 20 miles to the west of it. West of the Tamhpak again is the Nam Pilu or Balu *chaung*, which waters several of the small Myelat States, enters the Inle Lake, and then leaves it in a southerly direction, draining the southern States of the central division. It finally enters Karenni, where it disappears underground, its waters flowing in unknown channels to the Nam Pawn. A portion of the western States belongs to the Irrawaddy drainage. The Nam Tu or Myitnge runs along the northern boundary, receiving the waters of the Nam Lang, with its tributary the Nam Et, from the south, before entering the Irrawaddy valley. The last two rivers water the whole of the extreme north-western area except the south-western portion of Lawksawk, which is drained by the Zawgyi. This stream has its fountain-head in the Myelat, runs north for some distance in the Lawksawk State, then bends abruptly south-west, traversing the north of Maw, and finally leaves the hills in Kyaukse District to join the Irrawaddy. The Paunglaung river rises in the hills that form the boundary between Yamethin and the Myelat, and emerges on the plains in Yamethin District, where it is renamed the Sittang.

The principal hill ranges, like the rivers, run generally north and south. Along the western boundary is a lofty range towering over the plains of Yamethin and Kyaukse Districts, containing the prominent peaks of Sindaung and Myinmati, near Kalaw, and averaging over 5,000 feet. East of this range lies the Menetaung range in Pangtara, a bold block of hills culminating in a peak known as Ashe-myin-anauk-myin (7,678 feet); and east of that again the Loi Sang range divides

the valleys of Yawnghwe and the Tamhpak. Farther east, separating the valleys of the Tamhpak and the Nam Pawn, is a long range terminating in the north of Karenni, and rising to over 8,000 feet in two peaks, Loi Mai and Loi Maw. Beyond the Nam Pawn runs a parallel range, twice exceeding 8,000 feet. Eastward of this system are no well-defined continuous hill ranges, the country up to the Salween consisting of a high plateau cut up by valleys; nor do such ridges exist in the trans-Salween States, though the country is for the most part very rugged, and lofty hill masses are grouped near the frontiers. The Myelat, east of the high range separating it from Burma proper, is characterized by open rolling downs, large tracts of which are almost treeless and rather dry, the average level of the country being at a considerable altitude. Eastwards of the Myelat the scenery changes from tropical to alpine, the main features being the lateral ranges and intervening valleys described above. The first of these tracts of lowland is the well-watered Yawnghwe valley, which displays alternate expanses of park-like savannah forest and well-tilled land, with the great Inle Lake in its centre. Eastwards of this comes the basin of the Tamhpak, where broad plains of irrigated rice land are backed by grassy downs sloping up to the hills; and beyond this lies the typical highland strath in which the Nam Pawn runs. Thence to the Salween extends a wide plateau, with its rolling prairies well timbered in parts, broken up in places by outcrops of detached hills, and varied by stretches of picturesque river scenery along the Nam Teng and Nam Pang.

The only large lake in the States is the Inle in Yawnghwe, about 12 miles long and 6 broad, draining by the Nam Pilu river into the Salween. Two smaller lakes are situated in the north-east of Möngnai and in Hsahtung.

Geology. Not much is known of the geology of the Southern Shan States, except along the section east and west of Taunggyi, where the rocks have been classified as follows[1]. The oldest rocks consist of gneisses with veins of syenite and granite, and are exposed only along the western edge of the plateau. Beyond these, limestone is the prevailing rock, the lower portion probably corresponding to the Devonian limestone of the Northern Shan States, but it includes also fossiliferous beds of Permian age which are found east of Taunggyi. Purple sandstones are either faulted or folded in among the limestones,

[1] C. S. Middlemiss, *General Report*, *Geological Survey of India*, 1899–1900, p. 112.

and may represent the Mesozoic sandstones found between Hsīpaw and Lashio. Sub-recent beds of conglomerate sands and loams occupy longitudinal valleys between the ridges of limestone.

Along the western border runs a belt of *tarai* forest reaching to about 2,000 feet, of which the most conspicuous constituents are bamboos, *Dipterocarpus*, *Dillenia*, and climbers like *Spatholobus* and *Congea tomentosa*. From 2,500 to 4,000 feet the hills are clad with vegetation of a different character and composed of much larger trees, comprising such genera as *Schima*, *Sauranja*, *Turpinia*, *Dalbergia*, *Caesalpinia*, *Bauhinia*, *Terminalia*, *Lagerstroemia*, *Strychnos*, and *Quercus*. Several arboreous *Compositae* are also to be found in this belt. There is a plentiful undergrowth of shrubs and herbaceous plants; and ferns, mosses, and lichens abound. At an altitude of over 4,000 feet the forest gives place to an open rolling plateau of rounded grassy hills, with scattered clumps of oaks and pines, the vegetation being temperate in character. Species of *Ranunculus*, *Clematis*, *Viola*, *Polygala*, *Hypericum*, *Primula*, and *Swertia* abound, as well as representatives of the more tropical genera, such as *Lespedeza*, *Codonopsis*, *Ipomaea*, and many *Labiatae*[1]. Further particulars about the vegetation of the States will be found under the head of Forests. Botany.

The elephant, bison, *tsine* or *hsaing* (*Bos sondaicus*), and rhinoceros are met with, as well as the tiger, leopard, and other felidae. *Sāmbar*, swamp deer, hog deer, and barking-deer are common; bears are widely distributed; but the wild dog and the jackal are rare, as also is the serow. Hog are found everywhere, and the gibbon and monkeys of various kinds are numerous. Among snakes the Russell's viper is the commonest, while the hamadryad, cobra, and python are all occasionally met with. The harrier and kestrel are often seen, and very occasionally the Himālayan eagle. The cuckoo is a regular visitor, and a lark (identical with the English bird) is common. The list of water-fowl, both migratory and indigenous, is large, and among the rarer visitors may be mentioned the wood-snipe and woodcock. Fauna.

Portions of the States, such for instance as the country about the town of Kengtung and several of the *tarai* areas, are very unhealthy, but on the whole the climate is fairly temperate and salubrious. In the deeper valleys the climate is humid in Climate, temperature, and rainfall.

[1] H. Collett and W. B. Hemsley, 'On a Collection of Plants from Upper Burma and the Shan States.' (*Journal of the Linnean Society*, *Botany*, vol. xxviii.)

the rainy season, and very hot during March and April; on the uplands the heat during the day in those two months is considerable, but there is always an appreciable drop in the temperature at night. In December and January frost is quite common, and even in Mawkmai, one of the lowest valleys, the thermometer has been known to fall to freezing-point. The head-quarters station of Taunggyi has a mean temperature of 66°. The rainfall throughout is moderate, lessening towards the east. In Taunggyi the annual average is about 60 inches, and at Thamakan (Hsamönghkam) in the Myelat about 38.

History. It cannot be said with certainty who were the original inhabitants of the Shan States, but it is probable that the Tai (see NORTHERN SHAN STATES) came into a country already occupied by Was, Palaungs, Yins, Taungthus, and Karens. At any rate Burmese authority was undoubtedly brought to bear on the Southern Shan States long before permanent control was gained over Hsenwi, which was early in the seventeenth century, when the Mao Shan kingdom came to an end. In the remoter parts Burmese suzerainty was practically without effect in those early days, but in the nearer States it was an active and oppressive reality which slowly crept eastward, despite the influence of China. Wasted by internecine warfare of the most savage description, and by the rapacity of the Burmans, the States in time declined in power. The government of Ava fostered feuds both between the States and within them, so as to keep their rulers too weak for resistance. Risings were put down by calling out troops from the surrounding principalities, who were only too ready to ravage the rebellious area; in fact, some of the States are but now beginning fully to recover from the effects of those troublous days. The chief centre of Burmese administration in the years preceding the annexation of Upper Burma was Möngnai, the capital of the most powerful chief, where an officer with the title of *Bohmumintha* had his head-quarters. Troops were kept here and at Paikong, in Karenni, opposite Möngpai, the latter for the purpose of watching the Red Karens. Burmese Residents were appointed to the courts of all the States, but their counsels received but scant attention across the Salween. As at present, the Sawbwas administered their own charges, and exercised powers of life and death, and, what was probably more important, collected taxes. There was no check on oppression, though it was always open to the persecuted subject to remove to another State. After the death of king Mindon Min the administration collapsed, as it did over all the out-

lying parts of the Burmese dominions. The first chief to revolt was the Sawbwa of Kengtung across the Salween, who quarrelled with his suzerain over the appointment of a new Sawbwa to the neighbouring State of Kenghung (now in Chinese territory), massacred the Burmese Resident and staff, and burnt Kenghung. King Thībaw was too weak to retaliate, and the powerful chief of Möngnai joined in the revolt, followed by the Sawbwas of Möngnawng and Lawksawk. These more accessible States, however, on joining the general rebellion, were overrun by the Burmese troops, and the three Sawbwas had to take refuge in Kengtung in 1884. Here the first attempt was made at a Shan coalition with the intention of throwing off the Burmese yoke, and it appears probable that only the unexpected annexation of Burma itself by the British prevented the formation of a powerful Shan kingdom. A leader was selected in the Linbin prince, a nephew of king Mindon, who had escaped the wholesale massacre of the royal family by Thībaw's servants, and who arrived at Kengtung at the very time when the British expedition was being dispatched to Mandalay. The Burmese troops had been withdrawn, and it was a question of forcing on the States, some more or less unwilling, the ruler the allies had chosen. The Linbin faction crossed the Salween early in 1886; Möngnai was attacked, and an unfrocked *pongyi* named Twet Nga Lu, who had been administering the State since the Sawbwa's flight, was driven out; the rightful ruler was restored, and the Lawksawk and Möngnawng chiefs regained their dominions. The allies, who were soon joined by the south-western and many of the Myelat States, next set themselves to the task of persuading or compelling the other States to accept the Linbin prince as their leader. To this end they turned their attention to Kehsi Mansam, Möngküng, and Laihka, which had furnished troops to drive the Möngnai Sawbwa from his kingdom; the last was ravaged from end to end, and the two former fared nearly as badly. About the same time Möngpan in the south was raided by the Mawkmai ruler, and the capital was sacked. The Sawbwa of Lawksawk then proceeded to avenge himself on Yawnghwe, to which the former State had been subordinated by the Burmese government, when the Sawbwa fled to Kengtung; but the Sawbwa of Yawnghwe had by this time tendered his allegiance to the British Government, and, with some of the Myelat States behind him, was able to maintain himself against the Linbin confederacy, which had been pressing on him from the north and east. It was not, however,

until the arrival of an expedition under Colonel Stedman in 1886 that the investment of Yawnghwe and its Myelat allies ceased. This expedition started from Hlaingdet in Meiktila District, and encountered some slight opposition from the Lawksawk forces, but beyond this there was no resistance; the submission of Yawnghwe and the Myelat States was obtained without difficulty, and the Superintendent of the Shan States was installed in his charge, a post being established at Fort Stedman on the Inle Lake near Yawnghwe. The submission of these States was followed by that of the south-western States, where there had been trouble with the Red Karens, and the Superintendent then called on the Sawbwas of Möngnai and Möngpawn, the most active of the Linbin coalition, to submit to the British Government. They, however, merely withdrew to their territories. Matters were complicated at this stage by the States of Laihka, Möngküng, and Kehsi Mansam, which had suffered at the hands of the Linbin confederacy, and which took the opportunity of making a retaliatory raid on Möngpawn, the Sawbwa of which was the Linbin prince's most influential supporter. The Superintendent accordingly, after driving the hostile Sawbwa of Lawksawk out of his State, marched into Möngpawn, and brought about the reconciliation of the chiefs and the submission of the Linbin faction. The prince himself surrendered and was deported, and by June, 1887, all the cis-Salween Shan States had been brought under British rule and were free from disturbance. The Superintendent in 1887–8 made a tour throughout the States, and received the personal submission of the Sawbwas, settling their relations to the Government and to each other, without a shot being fired. Some trouble was caused by the ex-*pongyi* Twet Nga Lu, who in 1888 was able to drive out the Möngnai Sawbwa and establish himself in his capital, but he was eventually shot in the same year. The column which dealt with Twet Nga Lu was called upon to quell disturbances in the Southern Myelat States, which had been brought about by the chief of Yawnghwe, and, after it had settled matters in Möngnai, had to turn its attention to Mawkmai, which had been invaded and reduced to vassalage by Sawlapaw, the chief of Eastern Karenni, or Gantarawadi. Order was re-established in Mawkmai, but in June, 1888, Sawlapaw again attacked the State. He was, however, driven back with very severe loss; and as he refused to come in, a punitive expedition entered Sawlon, his capital, in 1889 and, on his flight, Sawlawi, his heir, was appointed in his place. Finally, the Kengtung State

on the farther side of the Salween submitted in 1890. Considerable difficulties arose with Siam about this time concerning certain trans-Salween dependencies of Mawkmai, Möngpan, and Karenni. In 1889–90 an Anglo-Siamese Commission, in which the Siamese Government declined to join at the last moment, partitioned these tracts, and the Siamese garrisons were withdrawn from so much of the country as was found not to belong to Siam. The demarcation of this frontier was finally carried out by a joint Commission in 1892–3. The Anglo-French boundary was settled in 1894–5, when the State of Kengcheng was divided between the two countries, the Mekong forming the boundary, and the cis-Mekong portion being added to Kengtung. The boundary of the Kengtung State and China was settled by the Anglo-Chinese Boundary Commission of 1898–9.

The most important pagodas are those at Angteng and Thandaung in Yawnghwe, said to have been built by Dhamma Thawka Min (Asoka) and Anawrata; their annual festivals are largely attended. In the Pangtara State is the Shwe-onhmin pagoda, a richly gilt shrine in a grotto in the hill-side. The side and roof of the cave are crowded with statues of Buddha and emblems of the faith. There is a larger attendance at its festival than at any other in the Southern Shan States, except perhaps that of Möngküng. In the Poila State is the Tame pagoda, covered on the upper half with copper plates and much revered. Both the Pangtara and Poila pagodas are said to have been built by Asoka and repaired by Anawrata of Pagan.

Area and population.

The population of the Southern Shan States in 1901 was 770,559. Its distribution is given in the table on the next page, which shows considerable variation in density of population. The small States of Pangmi and Nawngwawn are as thickly populated as the delta Districts of Lower Burma. With the exception of Yawnghwe, none of the larger Sawbwaships show a high figure, and the average for the States is only about half that for the Province as a whole.

Race and occupation.

The predominant race are the Shans (see NORTHERN SHAN STATES), who numbered 331,300 in 1901. They inhabit the entire Shan States in varying proportions, forming the greater part of the population of the eastern division, and being the most numerous of the many races inhabiting the Kengtung State across the Salween. In the central division they are not in the majority, the Taungthus taking their place, and they tend to confine themselves to the valleys, as along the Nam

State.	Area in square miles.	Number of villages.	Population in 1901.	Population per square mile.	Number of literate persons.
Kengtung	12,000	2,338	190,698	16	4,441
Yawnghwe	1,392	1,091	95,339	68	7,353
Central Division.					
Möngpai	660	158	19,358	29	95
Lawksawk	2,197	397	24,839	11	532
Samka	357	241	17,643	49	581
Nawngwawn	42	78	4,805	114	140
Hsahtung	472	159	10,584	22	143
Wanyin	219	158	11,297	51	218
Hopong	232	177	11,140	48	175
Namhkok	106	78	6,687	63	114
Sakoi	103	27	1,387	13	6
Eastern Division.					
Möngnai (with Kengtawng)	2,717	981	44,252	16	2,072
Laihka	1,433	531	25,811	18	1,022
Mawkmai	2,787	443	29,454	10	1,393
Möngpan	2,300	196	16,629	7	553
Möngpawn	371	212	13,143	35	302
Möngnawng	1,575	777	39,102	25	417
Möngküng	1,643	627	30,482	18	400
Möngsit	303	184	9,013	30	207
Kehsi Mansam	632	378	22,062	35	429
Kenghkam	167	52	5,458	33	379
Mönghsu (with Möngsang)	164	265	17,480	106	262
Kenglön	43	69	4,259	99	128
Myelat Division.					
Hsamönghkam	297	196	12,561	42	494
Kyawkku	94	33	4,771	51	323
Kyong	24	20	2,340	97	160
Loi-ai	200	70	5,442	27	231
Loimaw	49	59	4,576	93	37
Maw	550	70	7,743	14	340
Mawnang	40	43	3,755	94	25
Mawsön	40	31	3,557	89	374
Namhkai	75	76	6,780	90	103
Namtok	20	12	778	39	23
Pangmi	29	29	3,456	119	372
Pangtara	200	91	15,014	75	1,565
Poila	102	62	7,866	77	864
Yengan	400	71	9,958	25	580
Loilong	1,600	437	30,731	19	461
Southern Shan States	35,635	10,917	770,559*	22	27,390†

* Including 309 persons enumerated in survey camps in different portions of the States.

† Including 76 literate persons in the survey camps.

Tamhpak. In these States and in Loilong they are, however, numerous. In the rest of the Myelat States they are poorly represented. Next in importance from a numerical point of view are the TAUNGTHUS, of whom there were 124,900 in

1901. They abound most in the southern States of the central division, forming the entire hill population there; and are strongly represented in all but the Northern Myelat States, gathering most thickly on the mountains bordering Burma proper. Considerable numbers of them inhabit the western half of the eastern division, but in the Salween valley and in the north-eastern States they are practically unknown. The DANUS, a race of mixed Burman and Shan origin, and to a large extent speakers of Burmese, numbered 50,900 in 1901. They are the preponderating race in the Northern Myelat States, and are strongly represented in the northern States of the central division. The total in 1901 of the INTHAS (lake-dwellers), who inhabit the valley of the Inle Lake and of the Upper Nam Pilu, was 50,500. The Hkün Shans, numbering 41,500, are practically confined to the Kengtung State beyond the Salween, where too are found the hill-dwelling Kaws or AKHAS (26,000), the Lü Shans (16,200), and the WAS (23,800). The Taungyos (16,500), a hill tribe, who have been hitherto classified with the Taungthus, but who are probably more closely allied with the Burmans, are met with in the centre of the Myelat division; the Karens (18,700) live in the southern States of the central and eastern divisions bordering on KARENNI, and the Muhsös (15,800) (a Tibeto-Burman community who appear to be connected with the Lisaws) on the highest hills in the east of the Kengtung State. The PALAUNGS in 1901 numbered 11,800. They are nowhere thickly distributed, but are spread over all the northern half of the Southern Shan States from Burma proper to the Salween, as well as in parts of Kengtung. The Padaungs (7,800), a Karen community, best known to Europeans by reason of the brass rings with which their women elongate their necks, form a large part of the population of Möngpai, a State in the extreme south-western corner, on the Karenni border. Only 12,100 Burmans were enumerated in the States in 1901, although 91,700 persons were returned as ordinarily speaking Burmese. Less important from a numerical point of view are the Riangs or Yins (3,100), a pre-Shan tribe of Mon-Anam extraction, inhabiting the north-eastern cis-Salween States, and very closely allied with the Palaungs; and the Zayein Karens (4,140) of Loilong, the southernmost State of the Myelat division. There were not quite 1,000 Chinese in 1901, most of whom were born in the States. According to religion, Buddhists in 1901 numbered 696,800, and Animists (mainly trans-Salween non-Shan tribes) 69,900. Compara-

tively few Musalmāns and Hindus are found. Almost the only natives of India are Government servants and followers. Christians numbered 1,528, of whom 1,483 were natives. The American Baptist Mission has stations at Möngnai, in the eastern division, and at Kengtung. The population dependent upon agriculture in 1901 was 524,100, or 68 per cent. of the total; and of this total 262,200 persons, or about half, were dependent almost wholly on *taungya* (shifting) cultivation.

General agricultural conditions.

Cultivation in the Southern Shan States may be grouped under three heads: irrigated crops, 'dry' field crops, and garden crops. There are no regularly constructed canals; but advantage is taken of every stream in the country, and by means of weirs and small distribution channels, or water-wheels where the banks are high, large areas in the valleys are irrigated. Terraced fields also, fed by the waters of mountain brooks, are constructed with great labour wherever the ground allows, and the agricultural conditions are such that in some of the more favoured localities as many as three crops a year are gathered from irrigated land. The 'dry' crops, of which the most important is *taungya* rice, depend upon the rainfall for the moisture they require. There is nothing peculiar to the Southern Shan States in the methods of *taungya* cultivation, which have been described in the NORTHERN SHAN STATES. Irrigation in the case of garden cultivation is effected mainly by hand from wells and other sources.

Agricultural statistics and principal crops.

Rice is the staple food-grain; wheat is also grown, but chiefly for the use of the foreign residents. Potatoes, capsicums, and onions are produced in considerable quantities and exported; and other important crops are maize, millet, beans, sugar-cane, and gram. Cotton is cultivated over a large area, sesamum and ground-nuts are grown for the oil they produce, and the rhea plant for the sake of its fibre, which is in large demand among the local shoe and sandal-makers. On the higher ranges the cultivation of *thanat* trees, the leaves of which are used for cigar-wrappers, is extensive; and here poppy and indigo are also grown. Cinnamon is found in some of the States. Tobacco is a universal crop, and the Langhkü variety has a wide reputation. The principal garden crops are pine-apples, bananas, oranges, limes and citrons, custard-apples, guavas, pomegranates, peaches and plums; and English fruits have been tried with success at Taunggyi. In the hotter valleys coco-nut and areca palms flourish. Tea is indigenous, though the leaf is of very poor quality, and coffee has been successfully grown in Samka and Hsahtung.

With the increasing population the area under cultivation is gradually extending, but, except in the Myelat, no reliable statistics of the acreage under crop now and in the past are available. In the Myelat, exclusive of Loilong, about 40 square miles are cultivated, more than one-third of which is irrigated. The people are timid in regard to experimental cultivation, and in consequence no new varieties have supplanted the indigenous staples.

Cattle-breeding is carried on extensively throughout the States. The Taungthus are born cattle and pony-breeders, and in East Yawnghwe and the States in the Htamhpak valley, where they predominate, the rearing of live-stock is freely carried on. Cows are never milked, the calves being allowed to suckle at will; and the village bulls are permitted to roam about with the herds. Cattle are not used for plough-work in the Shan States; but buffaloes are extensively bred in every State for local agricultural work, and in the States of Kehsi Mansam and Möngnawng for export also. Ponies are bred largely in the States of Möngkung, Kehsi Mansam, Möngnawng, and East Yawnghwe, and to a limited extent generally throughout the States, but unfortunately sufficient attention is not given to the selection of sires. The result is that the ordinary pony now procurable is a very indifferent animal. In some States the chiefs keep Arab stallions, and there is keen competition for their foals. The smaller animals are exported to Chiengmai, where a diminutive animal is preferred, if showy. Two Persian donkey stallions were at one time placed in various parts of the States, but mule-breeding did not prove popular, and the experiment was discontinued. An indigenous goat, of a small black variety, is bred in the Kengtung State, but otherwise goat-breeding is in the hands of Indian residents, who confine themselves for the most part to imported varieties. Sheep are not indigenous. Several kinds have been tried, but with little success. It seems probable, however, that a hardy breed from the hills in India would do well. Cattle, &c.

Grazing is abundant both in the rains and in the dry season. At the beginning of the wet season cattle-disease (anthrax, rinderpest, *surra*, glanders, &c.) is nearly always present in some part of the States. Occasionally the disease is imported along the Government cart-road or by the caravans from China, but much is due to carelessness in the grazing of animals on low-lying and swampy ground. Since the engagement of trained veterinary assistants at the cost of the chiefs,

the live-stock has been better cared for and the segregation of diseased animals is now practised.

Fisheries.

The most important fisheries are in the Inle Lake (Yawnghwe), and on the Nam Pilu, which drains that piece of water. These fisheries are of great value, and yield a considerable revenue to the Yawnghwe Sawbwa. Besides supplying the local bazars, salted and dried fish are exported to all parts of the States from the Yawnghwe fishing area. In the lake a close season is observed during the Buddhist Lent. The spawning-beds are carefully preserved and supplied with food, in the shape of rice, ground-nut, and sesamum paste, &c.

Forests.

Under native rule the right of the paramount power to the forests in the Shan States was always asserted, and the same principle has been followed since annexation. The right to the timber extracted from their States is reserved to the British Government by the Sawbwas' *sanads*, and revenue is paid, whether the trees are extracted by the Sawbwas themselves or by private contractors. The distribution of the forests in the Southern Shan States is dependent chiefly on the elevation. The average height of the Shan plateau is probably between 2,000 and 3,000 feet above sea-level; but the hills frequently exceed 7,000 and sometimes 8,000 feet. The lower-lying streams are fringed by a very narrow belt of evergreen forest. This gives place almost at once, higher up, to a dry deciduous forest, frequently of the *indaing* type. Teak is limited to this deciduous belt, and is rarely found above 3,000 feet. Consequently, as even the minor watersheds generally exceed this elevation, teak occurs only in narrow belts parallel to the streams. Other characteristic trees of the deciduous forest are: *pyingado* (*Xylia dolabriformis*), *padauk* (*Pterocarpus macrocarpus*), *pyinma* (*Lagerstroemia Flos Reginae*), *in* (*Dipterocarpus tuberculatus*), *ingyin* (*Pentacme siamensis*), *thitya* (*Shorea obtusa*), and *thitsī* (*Melanorrhoea usitata*). At from 2,500 to 3,500 feet the deciduous forest may be associated with pines (*Pinus Merkusii*). This tree is rare west of the Nam Teng, and never forms pure forest. At 3,500 feet *Pinus Khasya* begins to appear; and finally at 4,000 feet the deciduous forest disappears, and its place is taken either by pure forest of *Pinus Khasya*, or by mixed forest of broad-leaved species, characterized by oaks, chestnuts, and *Schimae*. At 6,000 feet the pine or oak forests are generally replaced by a dark-foliaged evergreen forest, containing magnolias, *Laurinniae*, and rhododendrons.

The forests can best be considered in detail with reference to

the drainage basins. These are five in number, all containing teak and other valuable timber. In order of their economic importance they may be ranked as follows: the Salween, the Myitnge (or Nam Tu), the Mekong, the Nam Pawn, and the Paunglang or Sittang. In the Salween basin it is said that Möngnawng once contained teak forests. These have now, however, been completely destroyed by reckless over-working. Only the States in the lower course of the Salween and its tributaries, the Nam Pang and Nam Teng, now possess teak; and working-plans have been prepared for the forests of Kenghkam, Möngnai, and Möngpan, where the teak area exceeds 300 square miles. Most of these forests have been over-worked, and the forests of Mawkmai and of the Möngpu and Mönghsat sub-States of Kengtung are too exhausted for exploitation at present, though the teak tracts are extensive. The timber extracted from these forests is floated down the Salween to the Kado forest dépôt above Moulmein. The teak forests in the Nam Tu drainage area are mostly confined to Lawksawk, from which timber is extracted by way of the Nam Lang and the Nam Tu, to be collected at Ava, where the latter stream, there known as the Myitnge, falls into the Irrawaddy. The working of the forests in Kengtung in the Mekong drainage area has been taken in hand recently, but all the timber from this tract is destined for the French market at Saigon. The Nam Pawn drainage area includes the valleys of the Nam Pilu and Nam Tamhpak. It contains but little teak, and the streams are too full of obstructions to be of use for floating timber. The forests of Loilong on the Paunglaung drainage area have been reported as not worth exploiting, owing to their small value and their remoteness. The minor forest products include lac, turpentine, *thitsī*, *thanat* leaves, *Boehmeria nivea*, rubber, Chinese varnish, and canes. Cutch-bearing tracts are said to be fairly common, but have for the most part been ruined by reckless cutting. Details of the export of lac and *thitsī* (from the *Melanorrhoea usitata*) are given below under Commerce and Trade. Turpentine and Chinese varnish (from the *Aleuritis cordata*) could be exported in large quantities, but as yet little business has been done in either commodity. Rubber has been exported from Kengtung, but the cost of carriage is too great to allow of its being sold at a profit. The *Boehmeria nivea* is said to be common near the Salween: it is used locally for the manufacture of strong fishing-lines, and is a very valuable product. The wholesale girdling of unmarketable teak, the careless logging of the timber, and the ruinous

taungya system of cultivation have done immeasurable damage to the forests of the Shan States, and the ruin brought about by the last-named cause increases annually. The cutch forests have been nearly destroyed by excessive and thoughtless working. The forest revenue from the Southern Shan States in 1904 was Rs. 87,652, to which Kengtung contributed Rs. 34,000, Mawkmai Rs. 18,524, Möngpan Rs. 17,736, and Möngnai Rs. 15,344.

Minerals. Coal is found in the State of Laihka and in the Myelat, but in neither locality is it worked. Reports on its value are, however, favourable. Washings for gold are carried on in the stream-beds at various localities, but nothing in paying quantity has yet rewarded the washers. Silver, lead, and plumbago are mined in a small way in the Myelat, and iron occurs in some quantity in Laihka and Samka, in the former State giving employment to a number of villages. Copper ore, so far as is known, occurs only in the Myelat. In the trans-Salween sub-State of Möngpan, and in Namtok, saltpetre is collected, and mica (but of no marketable size) is gathered on the Nam Teng. A few spinels of very poor quality have been found in Mawkmai and elsewhere, but rubies have not been met with, and neither jade nor amber is known to exist. Fine pottery clay is worked in Möngküng, Yawnghwe, and Samka. Laterite is found everywhere, and limestone has been largely employed in building houses and offices in Taunggyi, and is used extensively for metalling Government roads. Lime-burning is a common occupation among the Shans.

Arts and manufactures. Cotton-weaving is carried on in practically every house in the States, and all articles of wearing apparel among the poorer classes are woven on the spot from locally grown cotton. In the neighbourhood of the Inle Lake in the Yawnghwe State silk-weaving is an important industry, the silks having a finish superior to those of the Mandalay looms. Embroidery (or more correctly a species of tapestry work) is practised among the Taungthus and Taungyos, being mostly applied to curtains (*kalagas*) and women's head-dresses.

In gold and silver-work the local goldsmiths are but little, if at all, behind the artificers of Burma; but, though deft, they lack individuality, for the designs in use are mainly modelled on Burmese originals. The iron-work made locally is for the most part confined to articles of domestic and agricultural utility, such as ploughshares, hoes, axes, choppers, scissors, tongs and tripods for cooking pots; and these are made mainly in Laihka, where iron is smelted, though *das* of very superior

quality are forged in Möngküng and Kehsi Mansam. Very little work is done in brass, wood, or ivory. Pottery is a widespread industry. All vessels for domestic use are manufactured; and in artistic work the potters of Möngküng, Yawnghwe, and Samka have a wide reputation, the glazed work of Hona (Möngküng) and Kyawktaing (Yawnghwe) being especially popular.

Mat-weaving is a universal employment during seasons of leisure from agricultural operations, but the products are usually rough. Lacquer-work has its centres in the States of Laihka and Möngnai. In the former the industry gives employment to a large number of families near the capital, but the Shan lacquer-work is generally inferior to that of Pagan. Basket-weaving is fairly well distributed through the country, and umbrellas and hats (*kamauks*) made of bamboo spathes are produced at various towns. In the State of Kenghkam the manufacture of Shan paper from the bark of a species of mulberry-tree (*Broussonetia papyrifera*) has assumed considerable proportions.

Commerce and trade.

The chief centres of trade are at Taunggyi, Mönghsawk (Fort Stedman), Panglong (in Laihka), Kehsi Mansam, Langhkü (Mawkmai), Samka, and Hsahtung. Most of the chiefs are large traders, and many of their officials follow suit; at Panglong and Kehsi Mansam and in the Hsahtung State whole communities are entirely dependent on trade, and engage in agriculture only to a limited extent. A considerable portion of the internal trade consists of cart traffic from the plains to Taunggyi and Mönghsawk. From the former pack-bullocks carry merchandise eastwards; from the latter it is borne southwards by river to Karenni. Internal trade is still largely in the hands of caravan traders, who employ bullock transport.

External trade is with Burma on the one hand, and with China and Siam on the other. The exports to Burma by all routes in 1903–4 were valued at 47·6 lakhs. The value of the forest produce exported to Moulmein and to Ava down the Salween and Myitnge rivers in that year amounted to 10 lakhs, the greater part being teak timber. Nearly 12,000 head of cattle, valued at 7 lakhs, and more than 1,000 ponies and mules, valued at 2 lakhs, were sent down during the year to Burma. Other exports included lac (valued at 6 lakhs), potatoes (0·4 lakh), and other vegetables and fruits (1·5 lakhs); varnishes, provisions of various kinds, Shan paper for umbrellas and ornaments, leathern goods, gums and resins (including *thitsī*), turmeric, silk piece-goods, *thanatpet* (for cigar-wrappers), sesamum and ground-nut oil, iron implements,

and lacquered boxes and bowls. The imports from Burma in the same year were valued at 39·6 lakhs: the main items were European cotton piece-goods (11 lakhs), silk goods (3·9 lakhs), dried fish (1·8 lakhs), betel-nuts (1·7 lakhs), salt (1·3 lakhs), cotton twist and yarn (1·9 lakhs), petroleum (1 lakh), woollen goods (1 lakh), apparel, metal-work, sugar, wheat, and drugs of various kinds in smaller quantities. Most of the trade with Burma, whether carried in carts or on bullocks, goes by the Government cart-road from Taunggyi to Thazi, although the bullock-tracks through the Natteik pass to Myittha in Kyaukse District and through Möngpai to Toungoo are also used. A certain amount of trade passes via the Northern Shan States to Upper Burma, being registered at Maymyo. To China and Siam the exports are much the same as to Burma; from China the chief imports are straw hats, copper and iron cooking pots, gold-leaf, fur-lined coats, silk, satin, opium-smoking requisites, sulphur, camphor, drugs and other articles; from Siam they include cutch, raw silk, betel-nuts, and kerosene oil. The China and Siam trade is not registered, and statistics of its volume and value cannot be given. The main route of the Chinese trade is through Kengtung and the Northern Shan States, that of the Siamese trade through Möngpan.

Means of communication.

There are as yet no railways, but a light railway on the 2 feet 6 inch gauge is projected, to connect the main Rangoon-Mandalay line with Taunggyi. A few good roads have been constructed. The principal land highway is the Thazi-Taunggyi road (105 miles in length). This thoroughfare starts from Thazi on the Burma Railway, and the first 41 miles of it are in Burma. It then passes through the Hsamönghkam State for 34 miles, then through the Yawnghwe State for 30 miles, and ends at Taunggyi. It is metalled and bridged for its entire length, and is very largely used by carts and mule and bullock caravans. A count taken at a given point showed that about forty carts passed that point daily. There are ten furnished inspection bungalows at suitable intervals along the route. The Sinhe-Fort Stedman branch road (14 miles) is an unmetalled cart-road branching off near the 92nd mile of the Thazi-Taunggyi road. It has good timber bridges and lies entirely in the Yawnghwe State. A furnished inspection bungalow is situated at Mawlikhsat, 3 miles from its junction with the Thazi-Taunggyi road, and another at Fort Stedman, 107 miles from Thazi. The Taunggyi-Wanpong cart-road (69 miles) forms part of the proposed Taunggyi-Kengtung

cart-road. It is unmetalled but bridged, and the first 12 miles will probably be metalled shortly. It passes through the following States: Yawnghwe (10½ miles), Hopong (18½ miles), Möngpawn (21½ miles), Laihka (9 miles), and Möngnai (9¾ miles); and five furnished inspection bungalows stand on it. The Wanpong-Takaw cart-road as far as Kyusawk (48 miles) is a continuation of the Taunggyi-Wanpong cart-road towards Kengtung. It is unmetalled but bridged, and has four inspection bungalows. The whole of it is in the Möngnai State. The mule-road from Fort Stedman to Kengtung starts from near the 105th mile of the Sinhe-Fort Stedman branch road, close to Fort Stedman, and 21 miles farther on joins the Taunggyi-Wanpong cart-road near Hopong; it then leaves the latter highway at Möngpawn and goes 77 miles to Hsaikao and thence to Kengtung. It passes through the following States: Yawnghwe (20½ miles), Hopong (1 mile), Möngpawn (6 miles), Möngnai (64 miles), and Kenghkam (7 miles); and five inspection bungalows are situated along it. Feeder-roads (bridged but not metalled), constructed by the chiefs, connect Lawksawk, the States in the Nam Tamhpak valley, Karenni, Laihka, Möngküng, Kehsi Mansam, Möngnai, Möngnawng, and Mawkmai with the Government cart-road. Similar tracks travel north and south of the Thazi-Taunggyi road through the Myelat States.

With the exception of the Nam Pilu, none of the rivers of the States is navigable for any great distance, the Salween itself being too much obstructed by rapids. Country boats navigate the Nam Pilu between Loikaw, Fort Stedman (the mart for Karenni), Samka, and Möngpai. There are nine ferries across the Salween, three across the Nam Pang, four across the Nam Teng, and two across the Nam Pawn. The ferries at Hko-ut (on the Nam Teng), Kenghkam (on the Nam Pang), and the Ta Kaw (on the Salween) are on the main road to Kengtung, and are subsidized by Government. The other ferries are kept up by the chiefs, and small tolls are levied.

A daily postal service plies between Thazi, Hsamönghkam, Fort Stedman, and Taunggyi, mule transport being used. Weekly services are maintained between Fort Stedman and Loikaw in Karenni, and between Taunggyi and Loilem, Möngnai, and Kengtung. Letter-boxes are placed at several of the chief places throughout the States and their contents are collected periodically, this subsidiary postal service being maintained by the chiefs.

Famine.

The rainfall of the States is, on the whole, ample and reliable, the population is sparse, and the soil is not infertile. Thus, except for a scarcity of food-grains in Laihka, in 1889, caused by the ravages of the troops of the Linbin confederacy, when several people died of want of food, there has been no famine in the country within recent years.

Administration.

The Southern Shan States are administered by a Superintendent and Political Officer (a member of the Burma Commission) at Taunggyi, with Assistant Superintendents at Kengtung, in charge of the Kengtung State; at Thamakan or Hsamönghkam, in charge of the Myelat division and Yawnghwe (16 States); at Taunggyi, in charge of the central division (9 States); at Loilem, in charge of the eastern division (12 States); and at Taunggyi as head-quarters Assistant and treasury officer. A sub-treasury officer and head-quarters magistrate resides at Kengtung. A certain amount of control is exercised by the Superintendent and Political Officer over the KARENNI States, which do not form part of British India and are not dealt with in the present article.

Under the supervision of the Superintendent and Political Officer and his Assistants, the chiefs, known as Sawbwas, Myozas, and Ngwegunhmus, control their own States, exercising revenue, civil, and criminal jurisdiction therein. There are in all 9 Sawbwas, 18 Myozas, and 11 Ngwegunhmus.

Civil justice and crime.

The system of criminal and civil justice administration in force throughout the greater part of the Southern Shan States is the same as that obtaining in the NORTHERN SHAN STATES. In the Myelat States the administration of criminal justice more resembles that of Burma proper. The chiefs have all been appointed first or second class magistrates under the Code of Criminal Procedure, and the law in force is practically that of Upper Burma. The administration of civil justice in Taunggyi, and in the stations of Kengtung and Fort Stedman, is vested exclusively in the Superintendent and Assistant Superintendents. The Gambling, Excise, Cattle Trespass, and certain other Acts have been specially extended to the civil station of Taunggyi.

Considering the vast area of the Southern Shan States there is remarkably little crime; cattle-theft is the most common offence, especially in the northern States of the eastern division and in Western Karenni. The civil courts of the chiefs are freely applied to, succession cases being numerous, and litigation between timber traders is common. Appeals from decisions in the civil courts of the chiefs lie to the Super-

intendent, and to Assistant Superintendents when so empowered specially by notification.

Budgets for the different States are submitted annually for the sanction of the Superintendent. These budgets show only purely State revenue, and do not include the income from forests in cases where chiefs are the lessees under Government. The principal source of revenue is *thathameda*. Land tax is collected in many States in kind, the rate varying from State to State, and is a cess on the number of baskets of seed sown. All near relatives of the chiefs are exempted from taxation, as are the majority of the officials, both ministers and circle officers, and the headmen of villages. Many families, mostly resident near the chief towns, hold land free for services performed for the chief, such as tilling the chief's private lands, acting as servants in various capacities, liability to be called on to swell the chief's retinue as occasion requires, and to serve as local police or as body-guards. Many such tenures are hereditary. Revenue administration.

The chiefs control the excise and opium arrangements in their charges in accordance with the terms of their *sanads*; but they are prohibited from permitting opium, spirits, fermented liquor, and other articles liable to customs duties or excise to be sent into Burma from their States, except in accordance with the rules made by the Government and on payment of the duties prescribed by those rules. Generally the chiefs administer revenue matters according to local rules and customs, which have been modified only to the extent of limiting their power to alienate communal lands and to grant land to persons who are not natives of the Shan States.

In 1903–4 the total revenue raised in the various States, apart from forest revenue credited to the British Government, amounted to 7·9 lakhs, made up as follows: from the Myelat division, 1·1 lakhs; from the central division (including Yawnghwe), 3·3 lakhs; from the eastern division, 2·4 lakhs; and from Kengtung, 1·1 lakhs. The tribute to the British Government is fixed for periods of five years. The actual collections in 1903–4 were: from the Myelat division, Rs 60,500; from the central division (including Yawnghwe), 1·2 lakhs; from the eastern division, 1 lakh; and from Kengtung, Rs. 30,000.

The chiefs are responsible for the maintenance of law and order in their States, and the village and circle headmen form the real police of the country, assisted by a few retainers. The civil police force consists of only 70 men, under an Assistant District Superintendent and a head constable. It is Police and jails.

recruited locally, and there is no difficulty in obtaining men to serve, for the pay is higher than in Burma. The men are armed with cut-down Sniders, and 14 of them are mounted. Half of the force is stationed at Taunggyi, the rest at Loilem, Thamakan (Hsamönghkam), Loikaw (in Karenni), and Kengtung. Their duties are to investigate such cases as the Superintendent or his Assistants may direct, and to furnish escorts and patrols. With the preservation of order in the States they are not concerned. A military police battalion has recently been formed for the Southern Shan States, which has displaced the troops that formerly composed the garrisons at Fort Stedman and Kengtung. It consists of ten companies—nine and a half companies of Indians (Sikhs, Gurkhas, and Punjābi Musalmāns) and half a company of Shans. It is officered by a commandant and five assistant commandants, and is distributed at all the principal stations. There are no jails in the States, only lock-ups at the head-quarters, in which short-term convicts are confined. Long-term prisoners are sent to the Meiktila jail to serve out their sentences.

Education. Education in the States is backward. Considering the large number of hill tribes, it is not surprising that the proportion of literate persons in 1901 was only 3·6 per cent. (7 males and 3 females). Indigenous teaching does, however, exist. To every village of any size is attached a Buddhist monastery, and there such smattering of letters as the priests can give is imparted. The ordinary peasant is, however, for the most part unlettered; for the period of novitiate in the monastery rarely exceeds a single Lent, and, except in the more richly endowed *pongyi kyaungs*, the monks themselves can scarcely be termed literate. Shan is naturally the language taught in the religious schools; but in the Taungthu districts Taungthu is the medium, although it does not possess an alphabet of its own. In the Western States the Burmese characters are adopted, and in the Eastern the Shan. Among the Inthas in the Yawnghwe State Burmese alone is taught, and at all the chief places in the larger States monasteries are managed by *pongyis* literate in Burmese, who teach that language. Very few details regarding the number of monastic schools are available, but it has been calculated that there were 294 in the Myelat in 1903. Lay schools do not exist except in the *haws* (palaces) of several of the wealthier chiefs, where the chief's children and relations receive a rudimentary education.

Schools are maintained in connexion with the American Baptist Mission at Möngnai, where Shan is taught in addition

to English. In 1901 a school for the sons of Shan chiefs was opened by Government at Taunggyi, with a staff of one head master and three assistant-masters. Admission to this institution is confined to sons and relatives of chiefs, their officials, and respectable commoners. At the beginning of 1905 the school contained 70 pupils. The education given is Anglo-vernacular (Burmese), and Shan is not taught.

Hospitals and dispensaries.

There are hospitals at Taunggyi, Hsamönghkam, Loilem, and Kengtung; and dispensaries at Kuheing in Möngnai, and at Kalaw on the Taunggyi-Thazi road. These contain accommodation for 52 in-patients, of whom 691 were treated in 1903. The out-patients treated during the same year numbered 22,129, and the total of operations was 255. The income of these hospitals, derived (with the exception of Rs. 473 subscribed at Taunggyi and Hsamönghkam) from Provincial funds, amounted to Rs. 11,000.

Vaccination.

In 1903-4 the number of persons successfully vaccinated was 6,983, representing 7 per 1,000 of population.

[Sir J. G. Scott, *Upper Burma Gazetteer* (5 vols., Rangoon, 1900-1).]

Shan States, Southern (Central Division).—A group of Shan States, Burma, consisting of the Sawbwaships of Möngpai and Lawksawk with their dependencies, and the Myozaships of Samka (with one dependency), Nawngwawn, Hsahtung (with two dependencies), Wanyin, Hopong (with one dependency), Namhkok, and Sakoi. The division is in charge of an Assistant Superintendent stationed at Taunggyi.

Shan States, Southern (Eastern Division).—A group of Shan States, Burma, consisting of the Sawbwaships of Möngnai, Laihka, Mawkmai, Möngpan, and Möngpawn (with their dependencies), and the Myozaships of Möngnawng, Möngküng, Möngsit, Kehsi Mansam, Kenghkam, Mönghsu, and Kenglön. The division is in charge of an Assistant Superintendent stationed at Loilem in the Laihka State near the Taunggyi-Kengtung road.

Myelat Division (Southern Shan States).—A group of Shan States, Burma, bordering on the Meiktila Division of Upper Burma, and consisting of the States of Hsamönghkam, Kyawkku, Kyong, Loi-ai, Loimaw, Maw, Mawnang, Mawsön, Namhkai, Namtok, Pangmi, Pangtara, Poila, Yengan, and Loilong. They are in charge of an Assistant Superintendent stationed at Hsamönghkam (Thamakan), a village near the Thazi-Taunggyi road. The Assistant Superintendent also supervises the administration of the Shan State of Yawnghwe.

Kengtung (Burmese, *Kyaington*).—A division of the Southern Shan States, Burma, and a State under a Sawbwa, residing at the capital, Kengtung. It is the largest Native State in Burma, having an area of about 12,000 square miles, and is situated between 20° 4′ and 22° 10′ N. and 98° 28′ and 101° 9′ E., lying, with the exception of a small area between the mouth of the Nam Hka river and the Takaw ferry, entirely east of the Salween. On the north it is bounded by the newly drawn Chinese frontier; on the east by China; on the south by the French Lao territory and Siam; and on the west by the Southern Shan States of Möngpan, Möngnai, and Möngnawng, and the Northern Shan State of Manglön, from which it is separated by the Nam Hka river. It includes the dependencies of Hsenyawt, Hsenmawng, Mönghsat, Möngpu, and Western Kengcheng. A good deal of the early history of Kengtung is purely legendary. It is clear, however, that the State has suffered much in the past at the hands of the Siamese and the Chinese, both of whom invaded it several times between the middle of the eighteenth and that of the nineteenth century. Some of the main features of the history of Kengtung since the annexation of Upper Burma are given in the article on the SOUTHERN SHAN STATES. The country is broken and mountainous, the hill ranges having a general north and south tendency; about two-thirds of it lies in the basin of the Mekong, and about one-third in the basin of the Salween, the watershed being a hill range varying from 5,000 to 7,000 feet in height. The climate in the valleys is extremely enervating during the rains; dense fogs prevail in the cold season, and the valleys are much hotter than their altitude would lead one to expect, while the daily range of temperature is large. Rice is the staple, but fruit of all kinds is cultivated in the gardens, while on the uplands cotton is the main crop. On the highest hills poppy is grown in addition to *taungya* rice and sesamum, and tea is cultivated for local consumption. There are rich forests, the revenue from which amounted in 1904 to Rs. 34,000. The population of the State in 1901 was 190,698, of whom 139,735 were returned as Buddhists and 50,039 as Animists. The people are Shans (Hkün and Lü), or belong to a variety of hill tribes, of which the most important are the Kaws or AKHAS, the Muhsös, and the WAS (Tai Loi, &c.). Divided by languages, 57,058 persons spoke Shan, 42,160 Hkün (the language of the Kengtung valley), 27,652 Akha, 19,380 Lü (the language of the valley between Kengtung and the Mekong), and 44,448 other vernaculars, such as Palaung,

Kachin, and Lisaw. The population in 1901 was distributed in 2,338 villages, the only urban area of any size being the capital, KENGTUNG (population, 5,695). The revenue, chiefly from *thathameda*, amounted in 1903–4 to 1·1 lakhs. The expenditure included Rs. 30,000 paid as tribute to the British Government, Rs. 24,000 spent on miscellaneous administrative charges, Rs. 33,500 devoted to the salaries of officials, Rs. 18,000 to the privy purse, and Rs. 4,350 to public works.

Kengtung Town.—Capital of Kengtung State in the Southern Shan States, Burma, situated in 21° 18′ N. and 99° 45′ E., towards the southern end of the central valley of the State. The town, which lies on low, undulating ground, was built early in the nineteenth century, and in 1901 had a population of 5,695. It is a straggling area, containing a few brick buildings and the Sawbwa's *haw* or palace of timber surrounded by a brick wall. Kengtung has till recently been the headquarters of an Assistant Superintendent. It was a post of importance in the eighteenth century, and was fortified strongly by Alaungpayā with a thick wall and a moat. It is still an important trading centre. The present station of Kengtung is about a quarter of a mile away, and contains the quarters of the police. The cantonment is about 7 miles west of the town. The place is very unhealthy, and a site for a new station has been found on a spur (Loi Mwe) at an altitude of 5,500 feet, 12 miles south-east of Kengtung town. There is room here for both the civil station and the cantonment, and a good supply of drinking water is obtainable. The garrison of Kengtung has recently been replaced by military police.

Yawnghwe (Burmese, *Nyaungywe*).—One of the most important of the Southern Shan States, Burma, lying between 20° 9′ and 21° 5′ N. and 96° 43′ and 97° 20′ E., with an area (including its dependencies) of 1,392 square miles. It is bounded on the north by the State of Lawksawk and its dependency Möngping; on the west by the Myelat division; on the south by Namhkai, Samka, and the Tamhpak dependency of Hsahtung; and on the east by Hsahtung, Wanyin, Nawngwawn, Namhkok, Hopong, and a detached circle of Möngnai. Its dependencies are Laihsak (Burmese, *Letthet*), in the extreme north-east; Anglewa (Burmese, *Inleywa*), at the end of the Inle Lake; Kyawktap (Burmese, *Kyauktat*), in the north-west corner; and Hsihkip (Burmese, *Thigyit*), isolated in the Myelat territory. The eastern half of the State is hilly, the Loi Sang range running north and south throughout its entire length, and rising above 6,000 feet, in places. Its western

slopes are steep, but eastwards it falls away gently in grass-covered downs to the valley of the Nam Tamhpak. The western half is a wide valley sloping towards the great Inle Lake, which overflows in the Nam Pilu (Balu *chaung*), a tributary of the Nam Pawn. The climate in the valley is similar to that of Kengtung, but the hills are much healthier. Rice is the staple crop, the lands near the Inle Lake being very fertile and also producing sugar-cane. Betel-vines are grown near the irrigation channels; on the higher land ground-nut is the main crop, and the more elevated slopes produce the ordinary *taungya* rice, which is the only crop grown in the eastern half of the State. Wheat has been tried, but, though it has done well, difficulty has been found in obtaining a market for the grain. The population of the State in 1901 was 95,339, distributed in 1,091 villages. The inhabitants are practically all Buddhists, and 50,399 returned themselves as Burmese speakers, a large proportion of this total being Danus. The Taungthu speakers numbered 25,810, and the Shan speakers 16,583. The balance of the population is made up of Inthas, Danus, Chinese, and a few natives of India. The capital is Yawnghwe (population, 3,804), near the head of the Inle Lake, an unpretentious village surrounded by 'wet' rice cultivation. Higher up the valley on the eastern slopes is TAUNGGYI, the administrative head-quarters of the Southern Shan States. A few miles to the south of the capital, on the Inle Lake, is Fort Stedman, till recently the head-quarters of a native regiment, now withdrawn. The revenue of the State in 1903–4 was made up of Rs. 1,18,000 *thathameda*, Rs. 52,500 land taxes of various kinds, Rs. 17,600 obtained from bazars, and Rs. 5,700 tax on the lake fisheries, or a total of Rs. 2,13,000, including paddy, valued at one rupee per basket. The expenditure included Rs. 65,000 paid as tribute to the British Government, Rs. 78,000 spent on administration, Rs. 44,000 made over to the privy purse, Rs. 15,000 spent on public works, and Rs. 12,000 on the pay of officials.

Taunggyi.—Head-quarters of the Superintendent and Political Officer of the Southern Shan States, Burma, situated in 20° 47′ N. and 96° 58′ E., 105 miles from the railway, on a small plateau in the Yawnghwe State, at an elevation of 5,000 feet above sea-level. On the north the aspect is open, giving fine views of the Yawnghwe and Lawksawk States; on the other three sides the station is shut in by hills. The public buildings comprise the residency, a *darbār* hall, the usual Government offices, and a school for the sons of Shan chieftains,

erected in 1901, and at present attended by about 70 boys. Taunggyi has 8 miles of metalled roads within its limits, and an unmetalled circular road $6\frac{1}{4}$ miles in length runs round the station. There are large bazar-buildings in the native quarter, and the market, held every five days, is largely attended, as the town is at the head of the cart-road from the railway, and is thus a distributing centre for a considerable area. A pure and abundant supply of water has been obtained at a cost of Rs. 83,000 from a spring on the hills in the neighbourhood. The water is brought in by a canal, and its distribution by pipes to the public buildings, police lines, and town is being carried out at Government expense, and also from funds subscribed by the Shan chiefs as a memorial to Her late Majesty Queen Victoria. Expenditure on public objects in the station is ordinarily met from a fund known as the Taunggyi improvement fund, which in 1903–4 had an income of Rs. 10,000, one half derived from *thathameda* and the other half from bazar and slaughter-house fees. Experimental cultivation of imported fruit has been successfully carried out in the Government orchard, from which trees are distributed throughout the States at nominal prices. The population of Taunggyi in 1901 was 2,816; but in November, 1904, this total had risen to 3,452, of whom 1,525 were Shans, 1,328 natives of India (including soldiers and police), and the rest Burmans, Chinese, and Europeans. The station is healthy, the temperature varying in 1903 from 37° in December to 87° in April.

Möngpai (Burmese, *Mobye*).—A State in the central division of the Southern Shan States, Burma, lying between 19° 20′ and 19° 53′ N. and 96° 36′ and 97° 9′ E., with an area of 660 square miles. It is the most south-westerly of the Shan States, being bounded on the south and east by Karenni; on the north by Loilong and Sakoi; and on the west by the Districts of Toungoo and Yamethin. The general character of the country is hilly, rising gently from the Nam Pilu (or Balu *chaung*), which traverses the north-east corner. The western part of the State consists of a confused mass of hills running generally north and south, and culminating in a ridge about 5,000 feet in height, which separates the basins of the Sittang and the Salween. Most of the level rice land is situated near the Pilu, and is irrigated from it by water-wheels, or by the diversion of small affluents. In the hills *taungya* (shifting) cultivation prevails. The Shans and Taungthus till the usual homestead gardens, in which mustard, tobacco, sugar-cane, cotton, and various fruits and vegetables are grown, and maize and millet

are cultivated by the Red Karens. The population of the State in 1901 was 19,351, distributed in 158 villages, and consists of Padaungs, Zayeins, Taungthus, and other Karen tribes, besides a few Shans. Only 4,612 persons were returned as Buddhists, and 13,380 as Animists. The Padaung speakers numbered 9,321, the Shan speakers 2,837, and the Taungthu speakers 1,416. The revenue of the State amounts to Rs. 8,000, derived almost entirely from *thathameda*. In 1903–4 the expenditure included Rs. 3,000 tribute to the British Government, Rs. 2,200 spent on general administration, Rs. 1,500 on the pay of officials, and Rs. 1,200 made over to the privy purse. The head-quarters of the Sawbwa are at Möngpai (population, 642), on the bank of the Pilu river.

Lawksawk (Burmese, *Yatsauk*).—A State in the central division of the Southern Shan States, Burma, lying between 20° 58′ and 22° 16′ N. and 96° 37′ and 97° 20′ E., with an area (including its dependency of Möngping) of 2,197 square miles. On the north it is bounded by the Hsīpaw State, from which it is separated by the Myitnge or Nam Tu river; on the east by Möngküng, Laihka, and Möngnai; on the south by Yawnghwe and two small Myelat States; and on the west by the Myelat States of Yengan and Maw and by Kyaukse District. The Möngping (Burmese, *Maingpyin*) dependency occupies the south-eastern portion, from which it is cut off by the Nam Et river. The State is broken and mountainous, the hills having a general north and south trend, with high ranges running along the eastern and western boundaries and down the centre. The eastern portion drains into the Nam Lang and its tributary the Nam Et, which run northwards throughout the length of the State to join the Nam Tu; the western portion is watered by the Zawgyi, which is a tributary of the Irrawaddy, and irrigates a large area of Kyaukse District. The middle and southern portions of the State consist of a fine rolling plateau, 3,500 feet above the sea, on which clumps of pine and oak stand in fine grassy glades. Of the several important forest areas, the richest is known as the Pyaungshu forest. The crops grown in the State are rice, sesamum, cotton, ground-nuts, and oranges. The Taungthus cultivate the hill-sides, and the Shans and Danus irrigate their crops in the valleys. *Thanatpet* is cultivated for cigar-wrappers. The State had been ravaged and almost entirely depopulated at the time of annexation (see article on SOUTHERN SHAN STATES). In 1901 the population numbered only 24,839 (distributed in 397 villages), of whom 11,847 spoke Shan, 10,077 Burmese

(Burmans or Danus), and 2,056 Taungthu. There are a few Palaungs and Taungyos. The capital, Lawksawk (population, 1,648), is well situated on a slope rising from the valley of the Zawgyi, and was once strongly fortified. The revenue in 1903-4 amounted to Rs. 27,000, the main source being *thathameda*; and the expenditure included Rs. 14,000 tribute to the British Government, Rs. 6,700 contribution to the privy purse, Rs. 2,600 pay of officials, Rs. 2,500 cost of general administration, and Rs. 1,300 public works.

Samka (Burmese, *Saga*).—A State in the central division of the Southern Shan States, Burma, lying between 19° 56′ and 20° 25′ N. and 96° 48′ and 97° 10′ E., with an area (including the small dependency of Pongmu on the north) of 357 square miles. It is bounded on the north by Yawnghwe; on the east by Hsahtung; on the south by Namtok and Sakoi; and on the west by Loilong. Samka consists of a strip of the Pilu valley, 30 miles long, shut in by high ranges on either side, the higher slopes of which belong to the adjoining States. Rice is grown both in the valleys and in *taungyas* on the hills, and garden crops and ground-nuts are extensively cultivated. The population in 1901 was 17,643, distributed in 241 villages. Classified according to language, 7,698 of the inhabitants were Shans, 5,187 Taungthus, and 4,385 Inthas. All but 350 persons were returned as Buddhists. The head-quarters of the Myoza are at Samka (population, 1,899), in the centre of the State on the bank of the Pilu. The revenue in 1903-4 amounted to Rs. 17,000, the main source being *thathameda*; and the expenditure included Rs. 10,000 tribute to the British Government, Rs. 4,300 allotted to the privy purse, Rs. 1,500 spent on public works, and Rs. 1,600 on the pay of officials.

Nawngwawn (Burmese, *Naungwun*, or *Naungmon*).—A small State in the central division of the Southern Shan States, Burma, lying in the valley of the Nam Tamhpak, between 20° 33′ and 20° 36′ N. and 97° 10′ and 97° 22′ E., with an area of 42 square miles. It is bounded on the north by Namhkok, on the east by Möngpawn, on the south by Wanyin, and on the west by Yawnghwe. Loiseng, one of the highest peaks in the Southern Shan States, over 8,000 feet above sea-level, stands on its eastern border. Irrigated rice, plantains, and groundnuts are the main crops. The population, which is almost entirely Shan, numbered 4,805 in 1901, distributed in 78 villages. The head-quarters of the Myoza are at Nawngwawn (population, 583), on the Nam Tamhpak. The revenue in 1903-4 amounted to Rs. 7,400, the main source being *thathameda*;

the chief items of expenditure were tribute (Rs. 2,500) and pay and administration (Rs. 3,000).

Hsahtung (Burmese, *Thaton*).—A State in the central division of the Southern Shan States, Burma, lying between 19° 54′ and 20° 24′ N. and 97° 7′ and 97° 29′ E., with an area (including the dependencies of Tamhpak or Tabet, and Lakmöng or Lamaing) of 472 square miles. On the north it is bounded by Wanyin, Möngpawn, and Möngsit; on the east by Mawkmai, from which it is separated by the Nam Pawn; on the south by Karenni; and on the west by Möngpai, Sakoi, Namtok, and Samka. Over the centre and eastern half of the main State extends a plateau, about 4,000 feet above the sea, formed of thinly wooded rolling downs. This is the prosperous Taungthu tract. The two dependencies are in the south, are low-lying, and are mainly populated by Shans. In the south is a small forest area, which was worked till recently. The forest revenue in 1904 amounted to Rs. 1,248. A certain amount of flat rice land is irrigated from the Tamhpak stream by means of water-wheels, but most of the rice is grown on the hill-slopes to the east on the *taungyas* worked by the Taungthus, who also cultivate numerous homestead gardens. Less important crops are cotton and tobacco. The population in 1901 was 10,584, distributed in 159 villages. Of this total, classified according to the language spoken, 7,616 were Taungthus, 2,126 Shans, and the remainder Padaungs and Karens. Nearly all the inhabitants are Buddhists. Hsahtung may be looked upon as the head-quarters of the Taungthu race in the Shan States. The Myoza, who is a Taungthu, has his residence at Loiput (population, 211), in the north of the State, connected by a country track with the main Southern Shan States cart-road. The revenue in 1903–4 amounted to Rs. 15,500 (nearly all from *thathameda*); and the chief items of expenditure were Rs. 6,000 tribute to the British Government, Rs. 4,700 spent on pay and administration, Rs. 3,600 credited to the privy purse, and Rs. 1,200 spent on public works.

Wanyin (Burmese, *Banyin*).—A State in the central division of the Southern Shan States, Burma, lying between 20° 19′ and 20° 31′ N. and 97° 9′ and 97° 25′ E., with an area of 219 square miles. It is bounded on the north by Nawngwawn; on the east by Möngpawn; on the south by Hsahtung; and on the west by Yawnghwe, from which it is separated by the Tamhpak stream. The country consists chiefly of rolling downs, rising from the valley of the Tamhpak on the west

to a high range which reaches 8,000 feet at its highest point on the east. It is well watered by the Tamhpak and its tributaries. The main crop is rice, which is grown both in *taungyas* and in the valleys and plains. The population of the State in 1901 was 11,297, distributed in 158 villages. Two-thirds of the inhabitants are Taungthus and most of the remainder are Shans. The former occupy all but the low-lying tracts; the Shans are found for the most part in the plains to the west and north, while a few Inthas live in the valleys. The Myoza has his head-quarters at Wanyin, a village of 568 inhabitants set in the middle of 'wet' paddy-fields towards the north of the State. The revenue in 1903-4 amounted to Rs. 17,000 (mostly *thathameda*); and the chief items of expenditure were tribute to the Imperial Government (Rs. 8,000), salaries and administration (Rs. 6,100), privy purse (Rs. 1,800), and public works (Rs. 1,000).

Hopong (Burmese, *Hopon*).—A small State in the central division of the Southern Shan States, Burma, lying between 20° 38′ and 20° 59′ N. and 97° 6′ and 97° 23′ E., with an area (including its small northern dependency of Hailong) of 232 square miles. It is bounded on the north by Lawksawk and Laihsak; on the east by Möngpawn; on the south by Namhkok; and on the west by Yawnghwe, from which it is separated by the Tamhpak stream. Towards the north and east the country is extremely hilly, but a considerable area of irrigated rice land lies in the valleys. *Taungya* rice is worked by the Taungthus, and vegetables, tobacco, and *thanatpet* are cultivated. The population in 1901 was 11,140, distributed in 177 villages. The people are nearly all Buddhists, and according to language were divided into 7,123 Taungthus, 3,775 Shans (inhabiting the plains), and 242 speakers of other languages. The head-quarters of the Myoza are at Hopong (population, 765), on the banks of a small stream called the Namkyeng, and connected by road with Taunggyi. The revenue in 1903-4 amounted to Rs. 14,000 (mainly *thathameda*); the chief items of expenditure were Rs. 6,000 tribute to the British Government, Rs. 3,600 spent on pay of officials and general administration, Rs. 2,600 on public works, and Rs. 1,800 paid into the privy purse.

Namhkok (Burmese, *Nankok*).—A State in the central division of the Southern Shan States, Burma, lying between 20° 33′ and 20° 47′ N. and 97° 11′ and 97° 21′ E., with an area of 106 square miles. It is bounded on the north by Hopong; on the east by Möngpawn; on the south by Nawng-

wawn; and on the west by Yawnghwe, from which it is separated by the Tamhpak river. From the Tamhpak valley the ground rises to a considerable height in the east on the Möngpawn border. Rice is grown both on the low-lying lands and in *taungyas* on the hill-slopes. Other crops are vegetables of various kinds, indigo, and *thanatpet*. The population of the State in 1901 was 6,687, distributed in 78 villages. Shans and Taungthus are represented in about equal proportions. The Myoza's head-quarters are at Namhkok (population, 383), in the valley of one of the eastern tributaries of the Nam Tamhpak. The revenue in 1903-4 amounted to Rs. 8,800 (mainly *thathameda*); and the chief items of expenditure were Rs. 4,500 tribute to the British Government, Rs. 2,400 spent on officials' salaries, &c., and Rs. 1,100 credited to the privy purse.

Sakoi (Burmese, *Sagwe*).—A small State in the central division of the Southern Shan States, Burma, lying astride of the Pilu river, between 19° 52′ and 20° 0′ N. and 96° 55′ and 97° 13′ E., with an area of 103 square miles. It is bounded on the north by Samka and Namtok; on the east by Hsahtung and Karenni; and on the south and west by Möngpai and Loilong. The population in 1901 was 1,387, inhabiting 27 villages, of whom three-fourths were Shans and the rest Karens and Taungthus, who are mainly occupied in rice cultivation. Sakoi, the head-quarters of the Myoza, has only 35 houses and 157 inhabitants; and there are no villages of any size in the State. The revenue in 1903-4 was only Rs. 1,600. The tribute payable to the British Government is Rs. 500.

Möngnai (Burmese, *Mone*).—A large State in the eastern division of the Southern Shan States, Burma, lying between 20° 22′ and 21° 12′ N. and 97° 33′ and 98° 56′ E., with an area (including its dependency of Kengtawng or Kyaingtaung) of 2,717 square miles. A large isolated circle abuts on the eastern boundary of Yawnghwe, bringing the effective western boundary to 97° 17′ E. The State is bounded on the east by Kengtung, from which it is separated by the Salween; on the south by Möngpan and Mawkmai; on the west by Möngsit and Laihka; and on the north by Laihka, Möngnawng, and Kenghkam. Möngnai proper occupies only the western half of this area. The eastern half forms the Kengtawng dependency, the two being separated by a long range, running north and south, averaging about 4,000 feet in height. The Nam Teng river, entering the State near its north-west corner, runs eastward till it doubles round the northern end of this

range, and waters the greater part of Kengtawng. The southern part of Möngnai proper is watered by the Nam Tawng, which runs in a southerly direction past the capital to join the Nam Teng, the valley being shut in on the west by a lofty range of mountains that forms the greater part of the boundary of the State. In the central plain watered by the Nam Tawng, and in the wide valley of the Nam Teng, rice is grown in considerable quantities, the latter area being particularly fertile. Sugar-cane and tobacco are cropped here and there, while gardens contain betel, coco-nut, oranges, and other fruits. Large quantities of Shan paper are manufactured from the bark of a species of mulberry, and exported to other States and to Burma for use in decorations, and for the manufacture of umbrellas, &c. The early records of Möngnai are vague and unsatisfactory. The part it played after annexation is briefly touched upon in the article on the SOUTHERN SHAN STATES. The population of the State in 1901 was 44,252, distributed in 981 villages. Of this total more than five-sixths are Shans. The Taungthus are fairly well represented (their total being over 4,000), and there are a certain number of Yins. The Sawbwa's head-quarters are at Möngnai (population, 3,078), near the Nam Tawng, once the largest place in the Southern Shan States, and still of considerable importance. The American Baptist Mission has a station at Möngnai, with a hospital attached which does valuable work locally. The revenue in 1903–4 amounted to Rs. 46,000 (mainly from *thathameda*); and the main items of expenditure were Rs. 20,000 tribute to the British Government, Rs. 18,000 spent on official salaries and general administration, Rs. 4,800 credited to the privy purse, and Rs. 3,000 spent on public works.

Laihka (Burmese, *Legya*).—A large State in the eastern division of the Southern Shan States, Burma, lying between 20° 47′ and 21° 36′ N. and 97° 19′ and 98° 9′ E., with an area of 1,433 square miles. It is bounded on the north by Möngküng and Möngnawng; on the east by Möngnawng and Möngnai; on the south by Möngnai, Möngsit, and Möngpawn; and on the west by Möngpawn and Lawksawk. The country is hilly and broken, the Nam Teng, an important affluent of the Salween, running north and south through the centre of the State. The early annals of Laihka are largely legendary. Its history in the years following the annexation of Upper Burma is briefly referred to in the article on the SOUTHERN SHAN STATES. The country to the east of the Nam Teng is

only now gradually recovering from the ravages caused by the troops of the Linbin confederacy in 1886. The greater part of the rice cultivation of the State is low-lying, and irrigated by the Nam Teng and Nam Pawn and their tributaries. The Taungthus work *taungyas* on the hills in the south-west of the State, and small gardens near their villages. Laihka is chiefly noted for its iron-work. Iron ore is found in the south-west corner near Panglong, where it is worked into all kinds of domestic and agricultural implements. The population, which in 1881 was estimated at 30,000, had been reduced by 1887, in consequence of the attacks of the Linbin confederacy, to something like a hundred. In 1891 it was estimated at about 9,000, and in 1901 was found to be 25,811, or almost what it was before annexation. Of the total in 1901, 21,197 were returned as speaking Shan, 1,877 Taungthu, 1,532 Palaung, and 1,008 Yin. The State contains 531 villages, the Sawbwa having his head-quarters at Laihka near the Nam Teng, an old fortified post of some importance with a population in 1901 of 1,150. The head-quarters of the Assistant Superintendent in charge of the eastern division are at Loilem near the Taunggyi-Kengtung road. The revenue in 1903-4 amounted to Rs. 24,000 (mainly from *thathameda*); and the chief items of expenditure were Rs. 10,000 tribute to the British Government, Rs. 6,000 spent on officials' salaries and administration charges, Rs. 6,000 paid into the privy purse, and Rs. 2,000 devoted to public works.

Mawkmai (Burmese, *Maukme*).—A State in the extreme south of the eastern division of the Southern Shan States, Burma, lying astride of the Salween, between 19° 35′ and 20° 26′ N. and 97° 25′ and 98° 32′ E., with an area (including the trans-Salween dependencies of Möngmaü and Mehsakun) of 2,787 square miles. The State is bounded on the north by Möngsit and Möngnai; on the east by Möngpan and its trans-Salween dependencies, which lie between it and Siam; on the south by Siam and Karenni; and on the west by Hsahtung. The central portion of the State proper is a wide fertile rice plain, to the east of which are hills extending to the cultivated Nam Teng valley. The lower part of this valley is chiefly given up to rice cultivation, and the upper part to tobacco, though considerable quantities of sesamum and sugar-cane are grown as well. Over the east of the State *taungya* (shifting) cultivation prevails. A large area is covered by forests, which in 1904 gave a revenue of Rs. 18,500. The Mehsakun dependency across the Salween

is comprised in the basin of the Nam Hsakun, and is inhabited by Shans. West of it is the Möngmaü dependency, a mountainous tract only the south-eastern corner of which has any population. The title to these two dependencies was finally affirmed by the Anglo-Siamese Boundary Commission of 1892–3. The total population in 1901 was 29,454, distributed in 443 villages. About 23,000 were Shans, about 5,900 Taungthus, and the remainder Karens and other tribes. The head-quarters of the Sawbwa are at Mawkmai (population, 1,375), on the Nam Nyim, a tributary of the Nam Teng. The revenue in 1903–4 amounted to Rs. 42,000 (mainly from *thathameda*); the chief items of expenditure were Rs. 18,000 tribute to the British Government, Rs. 10,000 officials' salaries and general administration charges, Rs. 9,700 privy purse, and Rs. 4,000 public works.

Möngpan (Burmese, *Maingpan*).—A State in the eastern division of the Southern Shan States, Burma, lying (with its trans-Salween dependencies) on both sides of the Salween, between 19° 40′ and 20° 32′ N. and 98° 2′ and 99° 12′ E., with an area of 2,300 square miles. On the north it is bounded by Möngnai; on the north-east by Kengtung; on the east and south by Siam; on the west by Mawkmai. Little is known of the early history of Möngpan. It went through troublous times after the annexation of Upper Burma, and was ravaged by the troops of the Linbin confederacy in 1886. The negotiations between the British and Siamese Governments in connexion with its trans-Salween dependencies are alluded to in the article on the SOUTHERN SHAN STATES. The centre of the State proper is a large fertile plain surrounding the capital, Möngpan. On all sides rise low hills covered with scrub jungle, culminating in a range about 5,000 feet in height, on the other side of which runs the Nam Teng. Between the central plain and the Salween, to the south and east, and towards the northern border is a confused mass of mountains. Of the trans-Salween dependencies Möngton is the most northerly. It borders on the Kengtung State; and population is confined practically to the narrow valley of the Nam Ton, which joins the Me Hang, a tributary of the Salween, from which the neighbouring dependency of Mönghang takes its name. This sub-State is mostly covered with jungle, its main feature being Loi Hkilek, a mountain nearly 7,000 feet high. On the border of the State, along the Salween west of Mönghang, is the dependency of Möngkyawt, a mountainous tract, with a small population, confined to the

valley of the Nam Kyawt, which runs through the sub-State first eastwards, then westwards, and then northwards, to join the Salween. The minute dependency of Mönghta lies in the basin of the Nam Hta, a tributary of the Nam Kyawt, to the west of Möngkyawt. Cultivation is practically confined to rice, both irrigated and *taungya*; and the central plain round Möngpan, the residence of the Sawbwa (population, 1,355), is very fertile. The State contains valuable teak forests, which in 1904 brought in a revenue of Rs. 17,700. The population of Möngpan in 1901 was 16,629 (distributed in 196 villages), of whom nearly all were Shans, only a few being Taungthus. The revenue in 1903-4 amounted to Rs. 15,000 (mainly from *thathameda*); the chief items of expenditure were Rs. 5,000 tribute to the British Government, Rs. 7,700 official salaries, &c., and Rs. 2,300 privy purse.

Möngpawn (Burmese, *Maingpun*).—A small State in the eastern division of the Southern Shan States, Burma, lying between 20° 24′ and 21° 0′ N. and 97° 20′ and 97° 32′ E., with an area of 371 square miles. It lies in the Upper Nam Pawn valley, and is bounded on the north by Laihka; on the east by Laihka and Möngsit; on the south by Hsahtung; and on the west by Wanyin, Nawngwawn, Namhkok, Hopong, and an outlying portion of Möngnai. Möngpawn played an important part in the history of the Shan States after the annexation of Upper Burma, its chief being the most active supporter of the Linbin prince. The State consists of the narrow valley of the Nam Pawn, on which rice irrigated by water-wheels is cultivated, the other main crops being *taungya* rice, cotton, sugar-cane, and *thanatpet*. The population in 1901 was 13,143, of whom about 7,000 were Shans and about 4,500 Taungthus; the former live in the valley, the latter on the hill-slopes. A few Yins are also found in the State. In 1901 the number of villages was 212, the residence of the Sawbwa being at Möngpawn (population, 1,230), on the Nam Pawn, where it is crossed by a bridge on the main road between Burma and Kengtung. The revenue in 1903-4 was Rs. 14,000 (mainly from *thathameda*); and the chief items of expenditure were Rs. 4,500 tribute to the British Government, Rs. 3,000 official salaries, &c., and Rs. 5,300 privy purse.

Möngnawng (Burmese, *Maingnaung*).—A large State in the eastern division of the Southern Shan States, Burma, lying between 20° 59′ and 21° 55′ N. and 97° 48′ and 98° 49′ E., with an area of 1,575 square miles. It is bounded on the north by Kehsi Mansam, Kenglön, and Möngsang; on the

east by the Shan States of Manglön and Kengtung, from which it is separated for the most part by the Salween; on the south by Kenghkam and Möngnai; and on the west by Laihka and Möngküng. The State at one time formed part of Hsenwi, but was made independent in 1850. In 1886 its ruler joined the Linbin confederacy, and was involved in the disturbances which culminated in the Linbin prince's surrender. The greater part of the State is open undulating country, with here and there jagged limestone hills rising from it. To the north and west are regular downs, almost treeless; to the south scrub jungle; to the east are rugged hills extending towards the Salween. The only river of importance is the Nam Pang, adjoining whose banks are many fertile paddy-fields. Rice is grown both on these plains and in *taungyas*, the level area round Möngnawng (population, 693), the residence of the Myoza, in the northern part of the State, being specially fertile. The population in 1901 was 39,102, distributed in 777 villages. Of the total more than 37,000 were Shans, the rest being Yins, Palaungs, and other hill tribes. The revenue in 1903-4 amounted to Rs. 23,000 (mainly from *thathameda*); and the chief items of expenditure were Rs. 10,000 tribute to the British Government, Rs. 6,700 official salaries and administration charges, Rs. 3,300 privy purse, and Rs. 3,000 public works.

Möngküng (Burmese, *Maingkaing*).—A large State in the eastern division of the Southern Shan States, Burma, lying between 21° 15′ and 22° 4′ N. and 97° 8′ and 97° 58′ E., with an area of 1,643 square miles. It is bounded on the north by the Northern Shan State of Hsīpaw; on the east by Hsīpaw, Kehsi Mansam, and Möngnawng; on the south by Laihka; and on the west by Lawksawk. The eastern part and the centre of the State are drained by the head-waters of the Nam Teng; and the large plain surrounding Möngküng (population, 1,190), the residence of the Myoza, is almost entirely under cultivation and thickly populated. The western side is watered by the Nam Lang. Excepting the central plain and the valley of the Nam Lang, the country is formed of low hills covered with oak and pine. Rice is grown in the central plain and in the bottoms of valleys where water is obtainable, and a good deal is exported. *Taungya* cultivation is but little practised. On the hills towards the western border, and on the range lying west of the capital, poppy is cultivated by the Palaungs. The population in 1901 was 30,482, distributed in 627 villages. Of the total about 27,500 were Shans and nearly 2,000 Palaungs, the rest being Yins (Yanglam) and Taungthus. Like other

States in this neighbourhood, Möngküng has only recently recovered from the dire effects of the disturbances that followed the annexation of Upper Burma. The revenue in 1903-4 amounted to Rs. 34,000 (nearly all from *thathameda*); and the chief items of expenditure were Rs. 15,000 tribute to the British Government, Rs. 7,400 officials' salaries and administration charges, Rs. 8,900 privy purse, and Rs. 2,700 public works.

Möngsit (Burmese, *Maingseik*).—A State in the eastern division of the Southern Shan States, Burma, lying between 20° 20′ and 20° 47′ N. and 97° 27′ and 97° 47′ E., with an area of 303 square miles. It is bounded on the north and east by Möngnai, on the south by Mawkmai, and on the west by Möngpawn. The State consists of a plain, about 12 miles long, the northern part lying in the basin of the Nam Teng, the southern in that of the Nam Pawn. The chief crop is lowland rice, a large part depending for irrigation upon the rainfall, but rice is also cultivated in *taungyas*. The population in 1901 was 9,013, distributed in 184 villages. Of the total, about 6,500 were Shans, 1,200 Yins (Yangsek), and 1,000 Taungthus. Möngsit (population, 1,223), the residence of the Myoza, lies in a valley towards the north of the State. The revenue in 1903-4 amounted to Rs. 11,000 (mostly from *thathameda*); and the chief items of expenditure were Rs. 4,500 tribute to the British Government, Rs. 3,800 general administration charges, and Rs. 2,500 privy purse.

Kehsi Mansam (Burmese, *Kyithi Bansan*).—A State in the eastern division of the Southern Shan States, Burma, lying between 21° 48′ and 22° 15′ N. and 97° 40′ and 98° 22′ E., with an area of 632 square miles. It is bounded on the north by the Northern Shan States of Hsīpaw and South Hsenwi; on the east by Kenglön, Manglön, and Mönghsu; on the south by Möngnawng and Möngküng; and on the west by Möngküng. In early days Kehsi Mansam formed part of North Hsenwi, but was made a Myozaship in 1860. The State consists chiefly of open rolling country, nowhere rising to any great height. Around the capital and to the east of it are almost treeless downs. Between the Nam Pang and the border of Manglön are two circles, undulating like the rest, but covered with scrub jungle; to the north and west the downs become low hills, as yet untouched by the *taungya* cultivator, in the valleys between which most of the 'wet' rice of the State is grown. The chief river is the Nam Heng, which separates the State from Hsīpaw and joins the Nam Pang. Rice is grown in both irrigated fields and *taungyas*, the other crops being

cotton, tobacco, and sesamum. Kehsi Mansam is, however, a commercial rather than an agricultural State. A good deal of business is done with Tawngpeng in tea; and there is a considerable trade in agricultural implements and bamboo hats (the Burmese *kamauk*), which are made in the northern part of the State. The population in 1901 was 22,062 (distributed in 378 villages), of whom about 19,500 were Shans, and about 2,500 Yins (Yanglam). Kehsi Mansam (population, 618), in the western part of the State, on the Nam Heng, is a trading centre of some importance, and was once a large town. The revenue in 1903-4 amounted to Rs. 15,000 (mainly from *thathameda*); the chief items of expenditure were Rs. 8,000 tribute to the British Government, Rs. 4,000 general administration charges, Rs. 2,000 privy purse, and Rs. 1,000 public works.

Kenghkam (Burmese, *Kyaingkan*).—A small State in the eastern division of the Southern Shan States, Burma, lying between 20° 50′ and 21° 7′ N. and 98° 20′ and 98° 37′ E., with an area of 167 square miles. It lies on both sides of the Nam Pang, and is bounded on the north by Möngnawng and a detached portion of Möngnai; on the east by a detached portion of Möngnawng and by the Salween river; and on the south and west by Möngnai. Rice is cultivated in the plain lying along the western bank of the river and on the hills to the west, but owing to the loss of population a large number of paddy-fields are fallow. The population of the State in 1901 was 5,458, practically all Shans, distributed in 52 villages. The residence of the Myoza is at Kenghkam (population, 1,203), a picturesquely situated village on the Nam Pang, a few miles north of the point where that stream flows into the Salween. The revenue in 1903-4 amounted to Rs. 4,000 (mostly from *thathameda*), and the tribute to the British Government is Rs. 2,000.

Mönghsu and **Möngsang** (Burmese, *Maingshu* and *Maingsin*).—Two small States (recently amalgamated) in the north of the eastern division of the Southern Shan States, Burma, lying between 21° 31′ and 22° 5′ N. and 98° 11′ and 98° 32′ E., with an area of 164 square miles. Both States used formerly to be part of the Northern Shan State of North Hsenwi, but were made separate charges in 1857. The combined State is bounded on the north and east by Manglön, on the south by Möngnawng, and on the west by Möngnawng and Kehsi Mansam. It consists mainly of rugged hills and broad valleys, watered by the Nam Pang and its affluents, and

rice is the only crop grown to any extent. The population in 1901 was 17,480, distributed in 265 villages. More than 14,000 of this total consisted of Shans, and the greater part of the remainder were Yins. A few Palaungs live in the hills. The residence of the Myoza is at Mönghsu (population, 244), to the east of the Nam Pang on a tributary of that stream. The revenue in 1903-4 amounted to Rs. 11,000 (all from *thathameda*); and the chief items of expenditure were Rs. 5,600 tribute to the British Government, Rs. 2,700 privy purse, and Rs. 1,700 general charges on account of administration.

Kenglön (Burmese, *Kyainglon*).—A small State in the eastern division of the Southern Shan States, Burma, lying geographically within the borders of Kehsi Mansam, but abutting in the south-east on Mönghsu. It is situated between 21° 51′ and 22° 2′ N. and 98° 2′ and 98° 13′ E., with an area of 43 square miles. Kenglön used at one time to form part of North Hsenwi. The country is undulating on the whole and the land is fertile. The main crop is lowland rice, and the people, who in 1901 numbered 4,259 (practically all Shans), export a good deal of rice. The population was distributed in 69 villages, of which the largest is Kenglön, the residence of the Myoza (population, 341), west of a chain of low hills towards the north of the State. The revenue in 1903-4 amounted to Rs. 4,000, and the tribute to the British Government is Rs. 1,500.

Hsamönghkam (Burmese, *Thamakan* or *Thamaingkan*).—One of the largest States in the Myelat division of the Southern Shan States, Burma, lying between 20° 26′ and 20° 50′ N. and 96° 27′ and 96° 47′ E., with an area of 297 square miles. It is bounded on the north by Kyong and Poila; on the east by Mawnang and a circle of Yawnghwe; on the south by part of Yawnghwe and by Loimaw and Loi-ai; and on the west by the Yamethin and Meiktila Districts of Upper Burma. About 7,500 acres are under cultivation. Rice is the chief crop, grown mainly in *taungyas*; *thanatpet* is an important product, and the cultivation and export of potatoes is on the increase. The population of the State in 1901 was 12,561, distributed in 196 villages. About 6,000 of the total were Danus (of mixed Burmese and Shan origin), 4,500 Taungthus, and the remainder Shans and members of other hill tribes. The residence of the Myoza is at Hsamönghkam (population, 531), in the centre of the State, near the main road from Thazi to Taunggyi. It is the head-quarters of the Assistant Superintendent in charge of the Myelat division. The revenue in 1904-5 was Rs. 16,000

(mainly from *thathameda*, but also including land revenue). The tribute to the British Government is Rs. 8,300.

Kyawkku (Burmese, *Kyaukku.*)—A small State in the Myelat division of the Southern Shan States, Burma, lying between 20° 51′ and 21° 2′ N. and 96° 29′ and 96° 40′ E., with an area of 94 square miles. It is bounded on the north and west by Yengan, on the east by Pangtara, and on the south by Kyong. The State is very hilly, especially towards the east, and the Panlaung river rises within its borders. Rice is the staple crop, and the total cultivated area is about 1,000 acres. The population in 1901 was 4,771 (distributed in 33 villages), of whom nearly 3,000 were Danus, about 1,400 Taungthus, and the rest Shans and Palaungs. The residence of the Ngwegunhmu is at Myinkyado (population, 354). The revenue in 1904–5 amounted to Rs. 3,900 (mainly from *thathameda*), and the tribute to the British Government is Rs. 2,000.

Kyong (Burmese, *Kyon*).—A small State in the Myelat division of the Southern Shan States, Burma, lying in 20° 47′ N. and 96° 39′ E., with an area of 24 square miles. It is bounded on the north by Kyawkku and Poila, on the east and west by Poila, and on the south by Hsamönghkam. It consists entirely of grassy downs, and is very dry. The population in 1901 was 2,340 (distributed in 20 villages), of whom about 1,000 were Taungthus, and the remainder Shans, Taungyos, and Danus. The residence of the Ngwegunhmu is at Kyong (population, 292), in the centre of the State. The revenue in 1904–5 amounted to Rs. 2,500 (mainly from *thathameda*), and the tribute to the British Government is Rs. 1,350.

Loi-ai (Burmese, *Lwe-e*).—A State in the Myelat division of the Southern Shan States, Burma, lying between 20° 26′ and 20° 50′ N. and 96° 33′ and 96° 41′ E., with an area of 200 square miles. It is bounded on the north by Hsamönghkam; on the east by the Hsihkip dependency of Yawnghwe, and by Namhkai; on the south by Namhkai; and on the west by the Yamethin District of Upper Burma. The western portion of the State is hilly, and is watered by affluents of the Panlaung river. The eastern part consists of open rolling downs, and drains into the Nam Pilu. The population in 1901 was 5,442, distributed in 70 villages. More than 4,000 of the total were Taungthus, and the rest Danus, Karens, and Shans. Lonpo (population, 249) is the chief village, and the residence of the Ngwegunhmu. The

revenue in 1904–5 amounted to Rs. 5,300, and the tribute to the British Government is Rs. 3,000.

Loimaw (Burmese, *Lwemaw*).—A small State in the Myelat division of the Southern Shan States, Burma, lying in 20° 30′ N. and 96° 45′ E., with an area of 49 square miles. It is bounded on the north by Hsamönghkam and Yawnghwe, on the east by Yawnghwe, on the south by Namhkai, and on the west by the Hsihkip dependency of Yawnghwe. The population in 1901 was 4,576 (distributed in 59 villages), of whom four-fifths were Taungthus, and the rest Shans and Danus. The residence of the Ngwegunhmu is at Minywa, a village of 109 inhabitants. The revenue in 1904–5 amounted to Rs. 4,000 (mainly from *thathameda*), and the tribute to the British Government is Rs. 2,500.

Maw (Burmese, *Baw*).—The northernmost and second largest of the States of the Myelat division of the Southern Shan States, Burma, lying between 21° 11′ and 21° 43′ N. and 96° 19′ and 96° 50′ E., with an area of 550 square miles. It is bounded on the north by the Yeyaman tract of the Kyaukse District of Upper Burma, on the east by Lawksawk, on the south by Yengan, and on the west by Kyaukse District. The State falls into two natural divisions: the valley of the Zawgyi, its only important waterway, with the hills to the north of that stream; and the Myelat plateau to the south. On the north, east, and west the State is bounded by mountain ranges, with peaks exceeding 5,000 feet in height. Rice, the chief crop, is grown in *taungyas* and on irrigated land in the Zawgyi valley; garden crops and *thanatpet* are also cultivated, but the total area under cultivation is not much more than 2,300 acres. The population in 1901 was 7,743 (distributed in 70 villages), of whom 6,884 were Burmese-speaking Danus, the rest Shans, Taungthus, and Palaungs. The principal village, where the Ngwegunhmu resides, is Myogyi (population, 1,002), close to the borders of Kyaukse. The revenue in 1904–5 amounted to Rs. 11,000, and the tribute to the British Government is Rs. 5,750.

Mawnang (Burmese, *Bawnin*).—A small State in the Myelat division of the Southern Shan States, Burma, lying between 20° 38′ and 20° 44′ N. and 96° 44′ and 96° 51′ E., with an area of 40 square miles. It borders on Hsamönghkam on the west, and on the other sides on Yawnghwe. Rice is grown in the swampy ground in the north, but the rest of the State is rather arid, and the total cultivated area is only about 700 acres. The population in 1901 was 3,755

(distributed in 43 villages), of whom more than 2,000 were Taungyos, and the rest Taungthus, Shans, and Burmese-Shans. The residence of the Myoza is at Mawnang (population, 198), a little south of the Thazi-Fort Stedman road. The revenue in 1904–5 amounted to Rs. 3,900, and the tribute to the British Government is Rs. 2,000.

Mawsön (Burmese, *Bawzaing*).—A small State in the Myelat division of the Southern Shan States, Burma, lying between 20° 52′ and 21° 3′ N. and 96° 43′ and 96° 50′ E., with an area of 40 square miles. It is bounded on the north by Lawksawk, on the east by Yawnghwe, on the south by Poila, and on the west by Pangtara. The country consists of open rolling downs, like the greater part of the Myelat. The population in 1901 was 3,557 (distributed in 31 villages), of whom about 1,500 were Danus, 1,300 Taungthus, and the rest Taungyos. The residence of the Ngwegunhmu is at Mawsön (population, 203), in the south of the State. The revenue in 1904–5 amounted to Rs. 2,900, and the tribute to the British Government is Rs. 1,500.

Namhkai (Burmese, *Nanke*).—A small State in the Myelat division of the Southern Shan States, Burma, lying between 20° 10′ and 20° 20′ N. and 96° 33′ and 96° 54′ E., with an area of 75 square miles. It is bounded on the north by Loi-ai, the Hsihkip dependency of Yawnghwe, and Loimaw; on the east by Yawnghwe; and on the south and west by Loilong. The greater part of the State consists of grassy downs, but to the west, towards Loilong, it breaks up into hilly country. The population in 1901 was 6,780, distributed in 76 villages, nearly the whole being Taungthus. The Ngwegunhmu, who resides at Paw-in (population, 259), is himself a Taungthu. The revenue in 1904–5 amounted to Rs. 5,000, and the tribute to the British Government is Rs. 3,000.

Namtok (Burmese, *Nantok*).—A very small State in the Myelat division of the Southern Shan States, Burma, lying in 20° N. and 97° E., in the Nam Pilu valley, enclosed between Samka, Loilong, and Sakoi, with an area of 20 square miles. The population in 1901 was 778 (in 12 villages), all Shan-speaking. The only village of any size is Namtok (population, 235), the residence of the Ngwegunhmu, lying on the Pilu. The revenue in 1904–5 amounted to Rs. 1,000, and the tribute to the British Government is Rs. 500.

Pangmi (Burmese, *Pinhmi*).—A very small State in the Myelat division of the Southern Shan States, Burma, situated in 20° 35′ N. and 96° 42′ E., almost within the boundaries

of Hsamönghkam, but touching Yawnghwe on the east, with an area of 29 square miles. The State is rather hillier than the rest of the Myelat, and is well watered, except to the east. The population in 1901 was 3,456 (distributed in 29 villages), of whom nearly 2,000 were Danus and about 1,400 Taungyos. The Ngwegunhmu resides at Legya (population, 371), not in the village of Pangmi. The revenue in 1904-5 amounted to Rs. 3,600, and the tribute to the British Government is Rs. 2,000.

Pangtara (Burmese, *Pindaya*).—A State in the Myelat division of the Southern Shan States, Burma, lying between 20° 55′ and 21° 6′ N. and 96° 37′ and 96° 45′ E., with an area of 200 square miles. It is bounded on the north by Lawksawk, on the south by Poila, on the east by Mawsön, and on the west by Yengan and Kyawkku. It consists of open rolling downs, with high hills to the west, and is exceptionally well watered by affluents of the Zawgyi. Near Pangtara, the residence of the Ngwegunhmu (population, 1,632), a considerable amount of 'wet' rice is grown. About 2,600 acres of land are under cultivation. The population in 1901 was 15,014 (distributed in 91 villages), of whom more than 11,000 were Shan-Burmans and Burmans, about 2,000 Taungthus, and the rest Danus, Palaungs, and Shans. The revenue in 1904-5 amounted to Rs. 17,500 (mainly from *thathameda*), and the tribute to the British Government is Rs. 9,500.

Poila or **Pwela** (Burmese, *Pwehla*).—A State in the Myelat division of the Southern Shan States, Burma, lying between 20° 43′ and 20° 55′ N. and 96° 38′ and 96° 46′ E., with an area of 102 square miles. It is bounded on the north by Pangtara, on the south by Hsamönghkam, on the east by Mawsön and Yawnghwe, and on the west by Kyong and Kyawkku. Two circles are detached and border on the Meiktila District of Upper Burma. The State consists of open rolling downs; there are no perennial streams, and the country is dry. The population in 1901 was 7,866 (distributed in 62 villages), about half of whom were Taungyos. The greater part of the remainder is made up of Danus and a few Taungthus. The residence of the Myoza is Poila (population, 1,247), a village near the centre of the State boasting of a large bazar. The revenue in 1904-5 amounted to Rs. 8,100, and the tribute to the British Government is Rs. 4,500.

Yengan (Burmese, *Ywangan*).—One of the most northerly

of the States in the Myelat division of the Southern Shan States, Burma, lying between 20° 55′ and 21° 14′ N. and 96° 13′ and 96° 38′ E., with an area of 400 square miles. It is bounded on the north by Maw, on the east by Lawksawk and Pangtara, on the south by Pangtara and Kyawkku, and on the west by the Meiktila and Kyaukse Districts of Upper Burma. The eastern portion consists of dry undulating downs, while the western is hilly and well watered by the Panlaung river and its affluents. Separating the State from Burma is a lofty barrier of mountains, in places over 5,000 feet in height. The population in 1901 was 9,958 (distributed in 71 villages), of whom over 7,000 were Shan-Burmans or Burmans, about 1,500 Taungthus, and the rest Shans, Palaungs, and other hill tribes. The residence of the Ngwegunhmu is at Yengan (population, 1,158), towards the north of the State. The revenue in 1904–5 amounted to Rs. 9,800, and the tribute to the British Government is Rs. 5,000.

Loilong (Burmese, *Lwelon*).—The largest and most southerly State in the Myelat division of the Southern Shan States, Burma, lying between 19° 41′ and 20° 14′ N. and 96° 20′ and 96° 58′ E., with an area of 1,600 square miles. On the north it is bounded by Namhkai, on the east by Samka and Sakoi, on the south by Möngpai and Yamethin District, and on the west by Yamethin District. The whole State is a mass of hill ridges running north and south, and culminating in the lofty Byingye range which overlooks Yamethin. It is watered by the numerous hill affluents of the Paunglaung river, which flows in a southerly direction right through it. It is well wooded, but the forests are of little value. Rice is the main crop, and is cultivated both in the irrigated valleys and in *taungyas*. Other products are tobacco, sesamum, indigo, ground-nuts, and vegetables. The Myoza resides at Pinlaung (population, 425), in the north-east corner of the State, near the head-waters of the Balu stream. The population in 1901 was 30,731, distributed in 437 villages. Classified according to language, 17,551 were Taungthus, 4,141 Shans, 2,986 Zayeins, and 2,839 Burmans and Shan-Burmans. The revenue in 1904–5 amounted to Rs. 16,500 (all from *thathameda*). The tribute to the British Government is Rs. 9,600, and Rs. 4,300 is spent on salaries and administration.

Karenni.—The country of the Red Karens, Burma, lying on both banks of the Salween, between 18° 50° and 19° 55′ N. and 97° 10′ and 97° 50′ E. It is bounded on the north by the Shan States, on the south by Salween District, on the east by

Siam, and on the west by Toungoo District. At Loikaw, a village of 2,042 inhabitants towards the north of the tract, an Assistant Superintendent of the Shan States is posted as Agent of the British Government, with a military police guard under an assistant commandant, and control is exercised by him and the Superintendent at Taunggyi over the chiefs. The tract is divided in a general way into eastern and western Karenni, the former consisting of the single State of Gantarawadi (2,500 square miles), the latter of the four small States of Kyebogyi (350 square miles), Bawlake (200 square miles), Nammekon (50 square miles), and Naungpale (30 square miles). The north-western portion is an open, fairly level plain, well watered and in some parts swampy. It lies in the basin of the Nam Pilu or Balu stream, which drains the Inlè Lake, and after flowing past Loikaw, sinks into the ground to the south-east of that village before joining the Nam Pawn. The rest of the Karenni country is mountainous, with occasional fertile valleys, but for the most part arid. It is watered by the Salween and its tributary the Nam Pawn, which are separated by a ridge 5,000 feet in height. Nothing definite is known of the history of the Karenni States prior to the middle of the nineteenth century. During the latter part of that century they were the scene of constant hostilities, occasioned by incursions from the Shan States and by intestinal disputes. Certain features of their history since the annexation of Upper Burma are given in the article on the SOUTHERN SHAN STATES. Gantarawadi was heavily fined for the disturbances which Sawlapaw had occasioned in 1888, and Sawlawi undertook to pay a tribute of Rs. 5,000 to the British Government. This chief was raised to the dignity of Sawbwa in 1901. The other four chiefs were formally recognized as feudatories in 1892, and appointed Myozas. Kyebogyi, Bawlake, and Nammekon pay a tribute of Rs. 100 each, and Naungpale Rs. 50. The population of Karenni was estimated in 1901 at 45,975, distributed as follows over the different States: Gantarawadi, 26,333; Kyebogyi, 9,867; Bawlake, 5,701; Nammekon, 2,629; and Naungpale, 1,265. The inhabitants are said to have decreased considerably of late, owing to the diminution of water in the Nam Pilu valley, the most cultivated part of the country. More than half are Red Karens, who are at a low stage of civilization, and very far from clean in their persons and habits. Other people represented are Shans, Taungthus, Bres, Padaungs, and White and other Karens. The chief wealth of the country is teak timber, rich forests lying on the left bank of the

Salween, on both banks of the Nam Pawn, and in the north-western States. The total revenue of the States in 1893-4 was Rs. 37,000.

Chin Hills.—A tract of mountainous country inhabited by hill tribes, on the north-west border of Burma, lying between 21° 45′ and 24° N. and 93° 20′ and 94° 5′ E., with an area of about 8,000 square miles. It forms a parallelogram about 250 miles in length, north and south, and varying in breadth from 100 to 150 miles. It is bounded on the north by Manipur; on the west by portions of the Lushai Hills and by the unadministered Chin area that lies to the north and east of the Northern Arakan District; on the south by unadministered country and by the Pakokku Chin Hills; and on the east it borders on the Upper Chindwin and Pakokku Districts. The tract consists from end to end of a mass of mountains, much broken and contorted and intersected by deep valleys, and is practically devoid of plains and table-lands. Its main ranges run generally north and south, and vary in height from 5,000 to 9,000 feet. Among the most important are the Letha or Tang, which is the watershed between the Chindwin and Manipur rivers; the Imbukklang, which sends the water from its eastern slopes into Upper Burma, and that from its western slopes into Arakan; and the Rongklang, which, with its prolongations, is the main watershed of the southern tracts, draining on the east into the Chindwin and on the west into the Bay of Bengal. The rivers of the tract flow into Upper Burma, Arakan, Assam, and Manipur. The largest are the Manipur, which starts from Manipur, enters the Chin territory in the north, and after flowing first south and then east leaves Falam on its right bank, and eventually joins the Myittha, one of the tributaries of the Chindwin; the Boinu, which rises in the Yahow country, runs south through the Haka and independent tracts as far as Aika, whence it turns west to Naring, and then flows north into the Lushai Hills, finally to enter Northern Arakan under the name of the Kaladan and fall into the Bay of Bengal; and the Tyao, which flows south to join the Boinu. The Hri lake, a small mere, about three-quarters of a mile long by one-quarter of a mile broad, is the only important stretch of water in the tract. It is situated near the border, on the Falam-Aijal road, in 23° 22′ N.

Boundaries, configuration, and hill and river systems.

The geology of the tract has not yet been worked out in detail, but it has been ascertained that all its rocks belong to the Tertiary period. They are thrown into great folds extending from north to south, and include beds of lower eocene age

Geology.

(Chin shales), Nummulitic limestones, and miocene clays and sandstones. On some of the higher elevations deposits of gravel have been found, and below these a bed of shale of great thickness. In this stratum indications of iron pyrites, sulphur, and ores of a similar nature have been observed in isolated spots, while steatite in fair quantities is found on the lower slopes near the plains. Salt occurs here and there throughout the hills.

Botany. Reference is made below to the chief timber-trees of the Chin Hills. Except in the dense jungles, the hills are thickly clothed with various kinds of grass, of which the coarse bent-grass is the commonest. Spear and elephant grass are found everywhere, whilst sweet meadow-grass grows round some of the villages. More than forty different kinds of trees, including fruit trees such as orange, lemon, citron, mulberry, fig, peach, &c., have been identified, and various flowers and orchids are to be met with. Among other plants, ivy, mistletoe, maidenhair-fern, sweetbrier, and clover (found at Haka) may be mentioned.

Fauna. The fauna of the hills is varied, and includes such of the larger beasts as the elephant, the rhinoceros (which is now becoming scarce), the bison, the *tsine* or *hsaing* (*Bos sondaicus*), and the *mithan* (*Gavaeus frontalis*), here believed to be a cross between the wild bison and domestic cattle. All the different species of deer found in Burma are denizens of the Chin jungles; and tigers, leopards, hog, and gibbons abound. A handsome long-haired goat is bred by the Chins, who also keep two breeds of dogs, not only for watch and ward, but for sacrificial purposes.

Climate, temperature, and rainfall. The climate, at an altitude of between 3,000 to 6,500 feet, is temperate. In the shade and above ground-level, the thermometer rarely rises above 85° or falls below 25°. During the hot season and in the sun very high temperatures have been registered, and on the grass in the cold season ten degrees of frost are not uncommon. In late years the northern tracts, as also some of the higher ranges in the southern tracts, have been visited by severe hailstorms. Rain has been known to fall in every month of the year, but the rainy season proper commences definitely in June and lasts until about the middle of November. The rainfall varies considerably in different parts of the hills; and at Kennedy Peak, Fort White, and Haka, where the jungle is heavy, the amount is greater than at Tiddim, Falam, and elsewhere, where pine-trees are found and the forest is thinner. The average annual rainfall is as follows: Haka and Fort White, 90 to 100 inches; Falam, 50 to

60 inches; Tiddim, 40 to 50 inches. Severe storms before the rains set in are common in the hills, and much damage has at times been caused by them.

The history of the Chin Hills prior to the annexation of Upper Burma is a record of constant feuds between the different tribes, of expeditions sent by the Chins against the Burmans, the Lushais, and the Manipurīs, and of the resistance offered by the people to counter-expeditions from their foreign enemies. Even after annexation the people, accustomed to look askance at their neighbours, could not bring themselves to believe in the good faith of the overtures made by the country's new rulers. During the cold season of 1887–8 negotiations were opened with the Tashons by the Deputy-Commissioner of the Upper Chindwin District. The suspicions of the tribe were, however, aroused, and they were induced by the Shwegyobyu prince and the ex-Sawbwa of Kale to raid in the valley. In May, 1889, they carried off the Kale Sawbwa, and only released him on the condition that he would join in a rising against the British Government. About the same time the Siyins in the north and the Hakas in the south had been giving trouble. Accordingly at the end of 1888 a column marched against the northern tribes, and the people were severely punished, many of their villages being destroyed. In 1889–90 an expedition was dispatched against the Tashons and Hakas, and a post was established at Haka, while in 1891–2 Falam was occupied and garrisoned, and from July, 1892, the Chin Hill Tracts, which had till then been two charges, were amalgamated into a single charge with head-quarters at Falam. In October, 1892, the Siyins and Ngwengal Soktes treacherously ambuscaded a Burman officer of Government, *Myo-ok* Maung Tun Win, and killed him and several of his escort. The cold season of 1892–3 was in consequence occupied in military operations; a large proportion of their arms were confiscated; the leaders were captured or else surrendered; the principal villages were fined and a house-tax was imposed. In 1894–5 the Hakas and southern tribes, and in 1895–6 the Tashons and central tribes, were disarmed. Matters had so far progressed in 1895–6 that it was possible to withdraw the military garrison. In that year the hills were formally declared part of Burma and constituted a scheduled District, their administration being provided for by the Chin Hills Regulation of 1896. In 1897–8 the Pakokku Chin Hill Tract was taken from Pakokku District, and made into a separate Assistant Superintendent's charge. Since 1896 the Chin Hills have, on the whole, been

peaceful, though in 1898–9 it was discovered that the Chins had rearmed themselves secretly, and disarmament operations had to be undertaken, during which the Rumklaos rose and killed three British subjects. The rising did not, however, spread, and was speedily stamped out, and in 1900 the disarmament of the tribes was completed.

Population. The following are some of the main population statistics obtained at the Census of 1901, the first enumeration that included the Chin Hills in its scope:—

Subdivision.	Number of villages.	Population.	Number of persons able to read and write.
Falam . . .	173	36,858	531
Tiddim . .	75	16,435	247
Haka . . .	153	33,896	237
Total	401	87,189	1,015

The principal villages are Falam and Laiyo in the Falam subdivision, Tiddim, Losao, and Tunzan in the Tiddim subdivision, and Haka and Thetta in the Haka subdivision; but the tract contains no towns. Animism is the prevailing religion. At the Census Animists numbered 85,200, or about 98 per cent. of the total population, the representatives of other religions being: Hindus, 1,029; Buddhists, 256; Musalmāns, 98; Christians, 33; and others (practically all Sikhs), 542. The American Baptist Mission has established a branch at Haka, and has opened several schools in the hills. There are a few Burmans, Shans, and Nāgās, but the great bulk of the population are Chins, who numbered 83,795. The following are the tribes administered from Falam: the Soktes (including the Kanhow clan), Siyins, Tashons, Yahows, Whennohs, Hakas, Klangklangs, and Yokwas, while in the south are independent villages belonging to none of these tribes. The Soktes, Kanhows, and Siyins inhabit the northern tract; the Tashons, Yahows, and Whennohs the central tract; and the Hakas, Klangklangs, and Yokwas and independent villages the southern tract. The compilation of tribal totals was not undertaken at the Census, and the precise strength of the different tribes is not known. The Soktes number probably 9,000; the Siyins, who are divided into four clans, between 1,500 and 2,000. The latter bear a very bad reputation, being feared and detested by all the other tribes, who attribute occult powers to them. By the southern Chins they are called Taute. The Tashons are numerically the most important tribe, and

their total has been computed at about 39,000. They are known among the northerners as Palamte, after Falam, their capital. The name given to them by the southern tribes is Shunkla. Their authority extended in the past over a number of other tribes, some of which, however, have regained their independence since the British occupation. The Yahows and Whennohs are two of these communities, numbering about 11,500. The Whennohs are really Lushais by descent. The Hakas, Klangklangs, Yokwas, and dwellers in some of the independent southern villages call themselves Lais. The Hakas, who have been nicknamed Baungshe, from their custom of wearing their top-knot and turban well forward on their heads, number about 14,000, the Klangklangs about 5,000, and the Yokwas between 2,500 and 3,000. The southern independent villages consist of about 50 autonomous hamlets, peopled by Yoyuns, Shintangs, Lawtus, Yos, and Lais. Their inhabitants number 17,000.

The Chins form a collection of tribes belonging, like the Burmans, the Kachins, the Nāgās, and other communities of Further Asia, to the Tibeto-Burman group of the Indo-Chinese race. There is reason to believe that, soon after the prehistoric ancestors of the Burmans had descended from the hills in the east of Tibet towards the head-waters of the Irrawaddy, and before any material change had come over their ancient form of speech, part of the immigration wave that was eventually to flow down into the Irrawaddy valley was deflected to the west, entered the Chindwin region, and eventually spread southwards and westwards over the hills to the Bengal side of the Chindwin, and down into what is now known as the Arakan Yoma. The Kukis or Chins formed a portion of this side-stream. There are three main geographical divisions of the people: the northern Chins, who inhabit the Chin Hills proper as well as a small area to the north; the central Chins, who, under the name of Kamis or Kwemis, Mros, Chinboks, Chinbons, &c., occupy the Northern Arakan District and the Pakokku Chin Hills; and the southern Chins, the inhabitants of the Arakan Yoma. It is with the northern Chins that we are here concerned. They are a sturdy, warlike, hospitable people, slow of speech, grave of habit, paying great regard to rank and to the ties of the clan, but spoilt by their intemperance, their vindictiveness, their treachery, their greed, their lack of persistence, and their personal uncleanliness. They inhabit villages built on the hill-slopes, some of them fortified; and their houses are often solid, elaborate structures. The

men's dress consists ordinarily of loin-cloth and blanket, the latter draped toga-like over the upper portion of the body. The women wear skirts, which are shorter in the north than in the south, and in most cases a jacket as well. Home-woven check plaids are notable features in a good many of the costumes. Ear-rings, necklaces, and bangles are worn by both sexes. Millet, maize, and vegetables are the ordinary food of the people. Rice is appreciated, but is not often procurable in the hills. Though the people are in the main vegetarians, *mithan*, dogs, goats, and pigs are consumed by them, and there is hardly any animal food that a Chin will decline to touch. Tobacco is smoked in pipes. The liquor of the country is known as *yu* or *zu*. It is made of fermented grain, and is sucked up through a hollow reed out of the pot in which it has been brewed. Enormous quantities of it are consumed at the Chin feasts, which have been described as disgusting orgies. Slavery in a modified form still exists among the Chins, but it is fast vanishing, and would disappear no doubt still faster were the slaves habitually ill-treated. As a matter of fact, the condition of the serfs is one of fairly average comfort, and they have very little to gain by freedom. The people are spirit-worshippers, are exceedingly superstitious, set much store by omens, and have a great belief in the efficacy of sacrifice. Their speech varies so enormously from tract to tract that tribes living barely a day's journey apart are often quite incapable of understanding each other. It has been placed in the Kuki-Chin group of the Tibeto-Burman branch of the Tibeto-Chinese language family. In structure it is not unlike Burmese, but the vocabularies of the two tongues differ very widely.

General agricultural conditions.

The surface soil for the most part, where the slopes permit it to accumulate, is either a rich loam or disintegrated shale, in both of which plants and vegetables suitable to the climate and altitude flourish. In the virgin forests a fairly deep surface coating of the richest decayed vegetable mould is found, and this coating enables rice to be grown on the *taungya* system in the north, on portions of the eastern slopes, and in certain parts in the south. The rice-fields are prepared by chopping down all the trees and undergrowth on the side of a hill during the cold season. These are allowed to lie, and when the leaves and branches are thoroughly dry, and the time for rain approaches, they are burnt. Rice can be raised on a new clearing for two or three years in succession, after which the land is left fallow. Before each crop is sown the stubble and

any timber which could not be consumed during preceding years is burnt. Rice is sown in May and gathered in October. The crop is entirely dependent on the rainfall, and as often as not is damaged by too much rain. All cultivation on the hill-side is done by manual labour, cattle being never used. Most of the fields are partially terraced by trunks of trees and stone supports. The land is never manured, but is enriched by burning the weeds and stalks of the gathered crops on old ground, and by setting fire to the fallen timber on new ground which has been cleared for the first time. The first three months of the year (January, February, and March) are spent in clearing and weeding the soil, building up the terraces, and generally getting the land into order for sowing. At the first rain in March and April the sowing commences. Rice and millet are each sown separately and broadcast, while sometimes cucumbers, pumpkins, and melons are grown in the same field as millet. Indian corn is planted, one or two grains in each hole, and in the same field beans of all sorts are also grown, and in some cases millet, while sweet potatoes are put down at any time during the rains. As soon as the seed is in the ground the fields are carefully guarded against animals and birds, and when the seeds sprout the weeds have to be plucked. The crops are gathered in July and in the three succeeding months. A second crop of millet or black beans is gathered off the same field during the year.

Chief agricultural statistics and principal crops.

The population actually engaged in agriculture in 1901 was 20,914 males and 11,304 females, whilst of the entire population 84,601 were primarily dependent on agriculture. The principal crops are: millet (*jowār*), rice, maize, gram, varieties of peas and beans, including the *aunglauk* bean, sweet potatoes, yams, turmeric, ginger, pumpkins, cucumbers, marrows, onions, chillies, brinjāls, and wild varieties of spinach. Melons, chillies, plantains, oranges, citrons, peaches, mangoes, papayas, and sweet limes are grown chiefly in the compounds, as also the tobacco plant. Cultivation would appear to have increased of late, but it is impossible to state the precise extent of the expansion. Potatoes have been introduced, and the Chins, though they do not consume them, cultivate them for sale. There is ample grazing for the live-stock.

Forests.

The forests of the Chin Hills may be divided into five classes, the lowest being the primaeval *in* forest, which flourishes at the foot of the hills, gradually giving way to mixed sub-tropical forest up to an altitude of 3,000 feet. Immediately above this come the pine tracts, which are found at their

best at an altitude of about 5,000 feet, here mixed with scrub-oak, which does not usually prosper above 6,000 feet. After this, commencing at an altitude of 4,000 feet, is found the rhododendron. The dwarf bamboo, generally not more than about 6 feet in height, grows on the highest slopes. Below an altitude of 3,500 feet teak attains a large size along the banks of the streams which flow into Burma from the uplands, while in the interior of the hills there are scattered teak-trees, though none of any great size. Cutch occurs in fair quantities along the lower slopes adjoining the plains, while in the depth of the hilly country cutch-trees in considerable numbers are met with, at an altitude of about 3,500 feet. The pine is the *Pinus Khasya*, and is the best resin-producing tree in the world. It is found throughout the hills, the trees varying in size. Portions of three 'reserved' forests extend to the hills in the Haka subdivision, but their boundaries have not yet been demarcated.

Mines and minerals.

Steatite is found in large quantities in the northern hills; on the eastern slopes near the plains sandstone and slate are common, and limestone occurs in a few isolated places. Salt in minute quantities is found throughout the hills. The best-known spring is the Chibu, on the banks of the Tuivai river in 24° N., and a few other brine-wells are scattered about elsewhere. Coal has been discovered to the west of the Kubo valley, but so far only in small quantities and of inferior quality. The steatite quarries were once worked by Burmans, but the cost of extraction was so great that they were abandoned. The Chins obtain salt by boiling the water obtained from the salt-springs in clay pots. The result is circular slabs of saline matter, which are very far from pure.

Arts and manufactures.

For export purposes the manufactures are confined to cane and bamboo mats and baskets, while for local use spears, *das*, hoes, and knives are forged. The iron is procured from Burma, and blacksmiths are found throughout the hills, but Wunhla in the southern Chin Hills is the only village that has a reputation for iron-work. Hairpins, ear-rings, bangles, armlets, and metal beads are manufactured, as well as domestic implements. Earthen pots are made (by women only) in several villages; waterproof coats and hats are manufactured everywhere, Rawvan in the south being specially noted for this industry. The coats are made out of the bark of a tree, and the hats of bamboo, bark, and palm leaves. Cotton is grown in the hills, and cotton-weaving is universal. The method is laborious on account of the primitive form of loom used, but the cloth

turned out, although of a rough texture, is lasting. The work is generally done by the women slaves of the household during their leisure. The weaving of the silk mantles used extensively as a wrap by the southern chiefs is carried out exclusively by their wives or daughters, slaves never taking part in the work, and the garments are seldom if ever sold. The weaving, which is considered an accomplishment, is an extremely slow process, on account of the intricate patterns that are woven into the texture, and it is nothing unusual for a woman to take two or three years in completing a length of the fabric. Adjoining the southern boundary Burmans rear silkworms, and dispose of the silk to the Chins.

The export trade is small, consisting for the most part of beeswax, the outside husk of the ear of Indian corn, and cane mats. The principal articles of the import trade, which is increasing yearly, are salt, iron, gongs, brass, cattle, beads, silk thread, and coloured cotton yarn. Most of the imports are obtained from Burma; and the chief centres of Chin trade are Yazagyo, Kalemyo, Indin, and Sihaung in the Upper Chindwin, and Kan and Gangaw in Pakokku District. A trade with Manipur is springing up, while Burmans from as far off as Mandalay are frequently to be found hawking their goods about the hills, and even beyond the western border. The principal trade routes are the Kalewa-Kalemyo-Fort White route, the Indin-Falam route, the Haka-Kan route, and the Manipur-Tiddim route. The Falam-Aijal road, which connects the Chin with the Lushai Hills, is helping to develop a trade with the Lushai country and Assam. The Chins when trading carry their goods themselves, but traders from Burma generally use pack-bullocks. Commerce and trade.

The main roads maintained from Provincial funds are the following. The Haka-Pyinthazeik road (with a branch from Tiddim) is an unmetalled road of a total length of 133 miles, of which 124 miles lie in the Chin Hills, and the remainder within the Upper Chindwin District. It crosses the Pao and Manipur rivers by means of wire-rope suspension bridges, and gives through communication between all the stations and posts in the hills, and also connects the hills with Pyinthazeik on the Myittha. There are fourteen rest-houses and camps on the road. The Falam-Indin road is an unmetalled track of a total length of 47 miles, of which 39 miles are within the Chin Hills, and the remainder in Upper Chindwin. It connects Falam with the left bank of the Myittha river at a point opposite Indin, and is provided with five resthouses. The Means of communication.

Haka-Kan road, an unmetalled mule-road, 55 miles in length, leads from Haka to the Chin Hills boundary, and on into Pakokku District. The Haka-Kunchaung road, an unmetalled mule-track 44 miles long, connects Haka with Kunchaung, a camp on the Manipur river. The Falam-Tyao river mule-road is an unmetalled road intended to connect Falam with Aijal, the head-quarters of the Lushai Hills. Its length to the Tyao, the boundary between the Chin and Lushai Hills, is 63 miles. It crosses six rivers, all bridged by timber lattice-girder bridges, and has six resthouses along it.

Administrative subdivisions and staff.

The Chin Hills contain three subdivisions, and are administered by a Superintendent, who is an officer of the Burma Commission, with head-quarters at Falam, and three Assistants posted at the subdivisional head-quarters—Tiddim, Falam, and Haka. The Assistant Superintendents are ordinarily members of the Provincial civil service or the Police department. There is a civil Medical Officer at Falam. The Chin Hills form a subdivision of the Chindwin Public Works division, and are in charge of an Assistant Engineer with head-quarters at Falam. A treasury officer is stationed at Falam. There are no Forest officers.

Civil and criminal justice.

Under the Chin Hills Regulation, 1896, the Chin Hills constitute a Sessions division and a District for criminal, civil, revenue, and general purposes, and the Superintendent is the Sessions Judge. As Sessions Judge he can take cognizance of any offence as a court of original jurisdiction, without the accused being committed to him by a magistrate. The Penal Code and Criminal Procedure Code with certain modifications are applicable to Chins, and for the purpose of the latter Code the Local Government exercises the power of a High Court. So far as regards persons other than Chins, the law in force is the same as that of Upper Burma. Each Assistant Superintendent is invested with magisterial powers. Under the Regulation headmen are held responsible for peace and order within their territories, and are empowered to try certain cases according to local custom. Special rules have been framed by the Local Government for the trial of civil suits between Chins.

Revenue.

The main sources of revenue are tribute and *thathameda*. The former, levied at the rate of Rs. 2 per house, yielded Rs. 41,900 in 1904–5; and *thathameda* realized Rs. 1,190. The other items of receipt are insignificant.

Police and jails.

A sergeant is stationed at the head-quarters of each subdivision, but beyond these no civil police are maintained in

the hills. Falam, the head-quarters of the District, possesses a small lock-up with accommodation for 12 prisoners. The tract is garrisoned by a military police battalion (the Chin Hills battalion), officered by a commandant and 6 assistant commandants, and consisting of 8 companies and 60 gun *kahārs*, distributed as follows: 3 companies (with 2 mounted guns) at Falam, 2 companies at Haka, 2 companies at Tiddim, and 1 company at Fort White. These furnish guards at Nos. 2 and 3 Stockades, Kalemyo, Kalewa, Bamboo Camp, Pine-tree Camp, Lomban, Minkin, Pioneer Camp, and Yelakun.

A Government vernacular school has lately been opened at Falam, and the attendance of pupils is good. The American Baptist Mission has established schools at Haka, Tiddim, Koset, Tunzan, and Yokwa. The Haka school has not made much progress as yet, but the others show satisfactory results. For the school at Haka a grant-in-aid of Rs. 2,500 has been given by Government. The expenditure on the school at Falam (opened in 1902) was Rs. 523 in 1904-5. No fees are taken at any of the schools. There are no *pongyi kyaungs* in the hills, and consequently outside the institutions specified education is at a very low ebb. The Census of 1901 showed that, even including natives of India and Burmans, the proportion of literate males per 1,000 of the male population was only 2·3 per cent. (as compared with 53 in the adjoining Upper Chindwin District), and that of literate females 0·1 per cent. of the female population. For both sexes together the proportion was 1·2 per cent. Education.

There are 4 military police hospitals, with a total accommodation for 96 men. Besides 3 civil hospitals a civil dispensary has been opened on the Falam-Aijal road, and a Hospital Assistant has been placed in charge. The civil hospitals have accommodation for 28 males and 2 females; and in 1903 the number of cases treated was 21,885 (including 557 in-patients), and 122 operations were performed. The total expenditure amounted to Rs. 5,800, of which Rs. 5,380 was provided by Government, and Rs. 300 from subscriptions. Hospitals and dispensaries.

No vaccination establishment was in existence until the latter part of 1901, when a vaccinator was employed. In 1900-1, 582 persons were vaccinated by the officers in charge of the hospitals; in 1901-2, 825; in 1902-3, 1,809; and in 1903-4, 3,617. Vaccination.

[B. S. Carey and H. N. Tuck, *The Chin Hills* (Rangoon, 1896).]

Falam Subdivision.—Central subdivision of the Chin Hills, Burma, bounded on the north by the Tiddim and on the south by the Haka subdivision. The population in 1901 was 36,858, largely Tashon Chins, inhabiting 173 villages, of which FALAM, containing 625 houses, is the largest and most important.

Tiddim.—Northern subdivision of the Chin Hills, Burma, bounded on the north by the State of Manipur and on the south by the Falam subdivision. The head-quarters are at Tiddim (population, 350), where an Assistant Superintendent is stationed. The population in 1901 was 16,435 (distributed in 75 villages), mostly Sokte and Siyin Chins.

Haka.—Southern subdivision of the Chin Hills, Burma, bounded on the north by the Falam subdivision and on the south by unadministered Chin tracts. The population is composed mostly of Lais (Hakas, Klangklangs, Yokwas, &c.), and in 1901 numbered 33,896, distributed in 153 villages. Haka, with 292 houses, is the most important village in the subdivision.

Falam.—Head-quarters of the Chin Hills, Burma, situated in 22° 56′ N. and 93° 44′ E., on a spur above the Manipur river, 5,300 feet above sea-level, and distant 108 miles from Kalewa, and 72 from Kalemyo on the Myittha, with which it is connected by a good mule road. In the early days of the occupation of the Chin Hills, Falam post was built on a spur overlooking the Tashon village of Falam. Owing to the unhealthiness of the site, however, the station was moved to where it now stands, 5 miles to the west of Falam village. Roads have been made in the station and trees planted. The water-supply is obtained from springs west of the station, and at present reaches the different buildings through open wooden ducts, soon to be replaced by iron pipes. The bazar lies to the east of the residential quarter. The regular inhabitants numbered 911 in 1901, besides a large floating population.

Boundaries, configuration, and hill and river systems.

Chin Hills, Pakokku.—A tract of hilly country west of Pakokku District, Burma, lying between 20° 40′ and 21° 45′ N. and 93° 30′ and 94° 9′ E., with an area of about 2,250 square miles, and inhabited by Chins. There is no distinctive native name for the tract. On its east is Pakokku District; on its north-east the Chin Hills; on its south-east and south Minbu District; on the south-west for a length of about 14 miles the tract borders on Akyab; thence westward and north-westward it is bounded by unadministered Chin country, from which, however, it is distinctly marked off by the Arakan Yoma in the

south, and by a spur from that range farther north. This spur is the backbone of the Pakokku Chin Hills. It branches off from the Yoma at about 21° 45′ N., at a peak called Aisatung, and ends in the south-east corner of the tract. It is 2,000 to 3,000 feet higher than the main range, which reaches an elevation of about 5,000 to 7,000 feet along the country now being described. The several offshoots from this spur and the deep valleys between form the hill tract. There is no flat country anywhere. Of the subsidiary spurs the most prominent is that which cuts the tract laterally into two almost equal parts, and rising to 10,400 feet in MOUNT VICTORIA, possesses the highest peak in all the Chin country. Lower down on this offshoot, at an elevation of 6,500 feet, is Kanpetlet, the head-quarters of the tract. The chief rivers are the Maw, the Yaw, and the Mon. The first runs northwards into the Myittha, and belongs to the drainage of the Chindwin, while the others have a generally southerly course and empty themselves into the Irrawaddy. The Mon is the largest; it rises under Aisatung, skirts the northern half, and flows through the southern half of the tract, and finally enters Minbu District.

So far as is known, the geology and botany of the tract differ in no essential particulars from those of the CHIN HILLS. In addition to the ordinary kinds of wild beasts found in Upper Burma (the tiger, the elephant, &c.), the only note-worthy animals are the *gural* (*Cemas goral*) and the serow (*Nemorhaedus bubalinus*). Different kinds of monkeys and flying squirrels abound. Geology, botany, and fauna.

Till recently no observations of rainfall have been taken, but it is estimated that about 100 inches of rain fall in the year. At Kanpetlet the average is about 120 inches. From June to November the climate is very humid and depressing, a day of uninterrupted sunshine being rare; and even when it is not raining heavy mists usually envelop the whole country. From the middle of December to the end of March the climate is cold, but dry and altogether enjoyable. The day temperature is then about 75°, and the night temperature 35° to 40°. Frost is constantly experienced at the higher levels, and in exposed spots the mercury has been found to register 27° at the coldest time of the year. High winds about the end of March and the beginning of April are followed by the early rains, which fall intermittently in April and May. Climate, temperature, and rainfall.

In the days of Burmese rule the hold over the tract was of the lightest. No tribute was paid to the king of Burma, though a few of the villages nearest the plains gave the *myo-* History.

thugyi they wished to propitiate a viss of beeswax and a cane mat yearly, in order to be allowed to trade. The bearers of these offerings were the only Chins who visited Burma with friendly intentions; but the number of hostile visitors to the plains was large, for raids were frequent, and were usually undertaken in order to obtain captives to be held to ransom. Bloodshed was avoided except when an expedition was made to avenge a Chin who had been killed by Burmans, and the leader of a foray had to give compensation for any loss of life or limb sustained by his followers. In return for this, however, he had the satisfaction of receiving most of the plunder taken and the captives made. The *thugyis* of certain Taungtha villages in Burma were recognized as go-betweens in the negotiations for the ransom of captives. The Chins attacked each other only to obtain payment for a debt, but inter-village fighting due to blood-feuds was common. After annexation, raids by the Chins came to the notice of the British as they advanced westward from Pakokku. The tract was visited by a military police column in 1889–90, and it was then decided to place the Chins under the supervision of the officer in charge of a subdivision to be formed along the border. In January, 1891, however, the Chins attacked this officer's head-quarters at Yawdwin. The sequel to this outbreak was the establishment of a military post in the hills at Mindat Sakan in 1891–2. After this the Chins remained fairly quiet till December, 1896, when they perpetrated an exceptionally savage raid, and in the following month attacked the post at Mindat. On this it was decided to constitute the country a Chin tract under the Chin Hills Regulation, and to station a special officer in the hills themselves instead of at their border. An Assistant Superintendent with all the powers of a Superintendent was accordingly posted to the charge of the tract in 1897. Since then there have been no serious raids, and the border may now be said to be entirely free from crime. In 1902 the head-quarters of the Assistant Superintendent were moved from Mindat Sakan to Kanpetlet on the slopes of Mount Victoria. This measure left the Chin police at Mindat unsupported; and the post there was twice raided by Chins from the unadministered tract, in consequence of which a post was established in 1903 at Hilong on the western border and garrisoned by Chin police.

Population.

At the Census of 1901 it was ascertained that the population of the tract was 13,116, distributed in 264 villages. The number of Chins was 12,508, of whom 9,013 were Chinboks,

2,469 Yindus, and 1,026 Chinbons. The Chinboks, with the exception of twelve villages of the tribe (the so-called Chinmes) on the Upper Mon, just beyond the border, are found only in the Pakokku Hill Tracts, while the Yindus and Chinbons overflow into the adjoining country, the first to the west, as far as the Arakan Hill Tracts, the latter to the south-west and the south. In reality they far outnumber the Chinboks. All these tribes belong to the central division of the Chin race (see CHIN HILLS). It should be borne in mind that this nomenclature has come from the Burmans, and is, including the term Chin itself, entirely unknown in the hills. For convenience of reference, however, it is retained. The Chinboks are found north of Mount Victoria, the Yindus occupy the country to the south and south-west of that eminence, and the Chinbons live south of the Yindus. The Yindus and the Chinboks belong practically to the same tribe. The Chinbons, on the other hand, are a distinct community, and their language is unintelligible to the other Chins. The inhabitants of the tract are practically all Animists. The Chinbok men wear a very scanty loin-cloth, and are seldom seen without their bows and arrows. The women's dress consists of a smock and a short skirt. The females all have their faces tattooed. Both sexes are fond of primitive ornaments. The Chinbons are as a rule somewhat more fully clad than the Chinboks.

General agricultural conditions.

The *taungya* system of cultivation is practised, and every Chin family in the tract engages in cultivation. The ground for the *taungya* is selected shortly after the preceding harvest, the clearing of the jungle is completed by February, and the *taungyas* are burnt in March and April. When the first rains fall about the middle of April festivals to propitiate the *nats* are held, after which each one is at liberty to sow his plot. The land is not ploughed. Small grain like rice or millet is sown broadcast, after the surface of the ground has been laboriously scratched all over with small hoes. When the seed is large a hole is made in the soil, and the seed is dropped into it and covered over with earth by hand. A *taungya* is worked for from one to four years, and is then left for six to sixteen years before it is worked again.

Principal crops.

The chief food-grains are *pum* (a white grain about the size of coarse sago), *sat*, Indian corn, beans, rice, and barley. *Pum* is never sown on newly cleared land, and does best on a patch from which rice or *sat* has been taken. Tobacco is cultivated in all the villages, and a red millet is grown from which the hill folk brew a liquor not unlike cider, and fairly palatable when

fresh. Most of the vegetables known in Upper Burma are grown.

Forests. Up to about 3,000 feet along the borders of Burma are found bamboo and the timber trees common to similar country in Upper Burma. Above these stretches a belt of *indaing*, interspersed with weakly pines and oaks. From 4,500 to 8,000 feet the chief trees are *Pinus Khasya*, oaks, and rhododendrons. Among other trees the yew, wild cherry, walnut, peach, and crab-apple have been noticed in the forests at this elevation. Above 8,500 feet are stretches of gnarled moss-covered oaks in the sheltered spots, and dwarfed rhododendrons and holly in the open grass lands. Dense patches of dwarf bamboos occur at about 8,000 feet. A continuation of the Kyauksit forest Reserve extends some way into the hills, but otherwise there is no 'reserved' area in the tract.

Minerals. Practically nothing is known at present of the mineral resources of the tract. Steatite is found near the Pakokku border, but nothing else of economic value has been discovered.

Arts and manufactures. The hills have nothing to show in the way of arts or manufactures. The only hand industries are rude weaving, pottery, and the making of cane mats, while a few blacksmiths fashion primitive spear- and arrow-heads from iron obtained from the plains.

Commerce and trade. Petty internal trade is carried on by barter, while for large transactions the currency used is ear-rings. These are shaped like flat key-rings, and are made of an alloy of gold, silver, and brass. They are said to have been originally obtained from Arakan, but they do not seem to be imported now. The Chins carry on a small trade with Burma, the exports consisting of beeswax, honey, and mats, and the imports of salt, cotton twist, beads, and gongs.

Means of communication. The villages of the tract are connected by rough jungle paths, but these are so bad that only a habitual resident of the hills would voluntarily travel by them, and are entirely impracticable for beasts of burden. The following mule-tracks have, however, been made by the Public Works department: from Saw to Kanpetlet, 12 miles, and thence 7 miles farther up the Mount Victoria range to Kyetchedaung; from Mindat to Hilong, 14 miles, and on to the trans-border village of Khrum; from Kanpetlet to Mindat, 32 miles. Several routes lead from the Irrawaddy; the first from Pakokku via Pauk is nine to eleven marches, the second from Zigat, opposite the steamer *ghāt* of Sale, is six. A third from Sinbyugyun is also

six marches. Furnished resthouses have been provided on both routes, and also on the two mule-tracks above-mentioned.

The tract is under the immediate control of the Commissioner of the Minbu Division, to whom the Assistant Superintendent is directly subordinate. The head-quarters of the Assistant Superintendent are at Kanpetlet, on the high ground of which Mount Victoria forms the highest point. The 264 villages in the tract are divided into ten groups, each of which is supervised by a paid headman, and a headman is in charge of each village. The tract forms part of the Yaw Forest division, and is a subdivision of the Pakokku Public Works division. Administration.

The only court is that of the Assistant Superintendent, who tries criminal cases and decides civil suits, besides sitting as the court of a Superintendent or a District Magistrate, and, when necessary, as that of a Sessions Judge, under the control of the Local Government (represented by the Commissioner of Minbu) as High Court. Crime is on the whole light; but, as might be expected of a people as barbarous and vindictive as the Chins, offences against the person are committed at times. Civil justice and crime.

Tribute at the rate of R. 1 a house is collected yearly, and a small amount of revenue is derived from the sale of the right to quarry soapstone and from licences to boil cutch. The total revenue from all sources in 1904–5 amounted to over Rs. 2,800. Nothing in the shape of land revenue is collected. All land, cultivable or uncultivable, is claimed by some individual or family, who trace its ownership back for generations. Land can be bought outright, an ear-ring worth about Rs. 15 being sufficient to purchase an area that can be worked by three families; but there is not much traffic in immovable property. Revenue administration.

The military police garrison, which is furnished by the Magwe battalion, consists of a detachment of 40 men stationed at Kanpetlet. The actual policing of the tract is in the hands of a force of Chin armed police, composed of 2 head constables, 3 sergeants, and 71 constables, who, in addition to their other duties, furnish a detachment of 30 men stationed at Hilong to watch the border. A hospital is maintained at Kanpetlet, but is very little patronized by the Chins. Police, hospitals, &c.

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